

Workshop Manual Audi A2 2001 ➤

5-speed manual gearbox 02T

Edition 12.2008

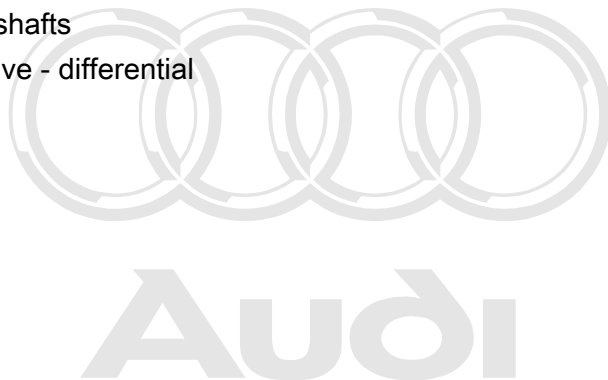


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

List of Workshop Manual Repair Groups

Repair Group

- 00 - Technical data
- 30 - Clutch
- 34 - Controls, housing
- 35 - Gears, shafts
- 39 - Final drive - differential



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

All rights reserved.
No reproduction without prior agreement from publisher.

Contents

00 - Technical data	1
1 Gearbox identification	1
1.1 Location on gearbox	1
1.2 Code letters, allocation, transmission ratios, capacities	1
2 Transmission layout	5
2.1 Identification and ratio	5
2.2 Calculating ratio "i"	5
3 Repair instructions	7
3.1 Contact corrosion!	7
3.2 General repair instructions	7
30 - Clutch	11
1 Servicing clutch mechanism	11
1.1 Checking hydraulic clutch mechanism	11
1.2 Exploded view - pedal cluster	12
1.3 Removing and installing over-centre spring	14
1.4 Removing and installing clutch pedal	14
1.5 Exploded view - hydraulic system	15
1.6 Removing and installing clutch master cylinder	17
1.7 Removing and installing clutch slave cylinder	20
1.8 Bleeding clutch system	21
2 Servicing clutch release mechanism	23
3 Servicing clutch	25
3.1 Fault-finding on power transmission - complaints regarding defects on the clutch and clutch mechanism	25
3.2 Servicing clutch - exploded view	30
3.3 Removing and installing clutch	32
34 - Controls, housing	34
1 Servicing selector mechanism	34
1.1 Installation position of selector mechanism	34
1.2 Removing and installing gear knob and boot	35
1.3 Servicing gear lever and selector housing	37
1.4 Removing and installing selector cables - exploded view	40
1.5 Removing and installing selector mechanism	43
1.6 Adjusting selector mechanism	46
2 Removing and installing gearbox	49
3 Checking gearbox oil	57
4 Dismantling and assembling gearbox	58
4.1 General layout of gearbox	58
4.2 Removing and installing gearbox housing cover and 5th gear	60
4.3 Removing and installing clutch housing	61
4.4 Removing and installing input shaft, output shaft (pinion shaft), differential, selector mechanism and selector forks	62
4.5 Dismantling and assembling sequence	64
4.6 Modifying gearbox support 3221	65
5 Servicing gearbox housing and clutch housing	72
6 Dismantling and assembling selector mechanism in gearbox	78
7 Dismantling and assembling selector forks	81
35 - Gears, shafts	85
1 Dismantling and assembling input shaft	85



2	Dismantling and assembling output shaft	97
39	- Final drive - differential	104
1	Renewing flange shaft oil seals with gearbox installed	104
1.1	Renewing flange shaft oil seal (left-side)	104
1.2	Renewing flange shaft oil seal (right-side)	106
2	Dismantling and assembling differential	109
2.1	Modified gearbox housing and tapered roller bearings for differential from gearbox build date 10 06 2 onwards	115
3	Adjusting differential	121



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

00 – Technical data

1 Gearbox identification

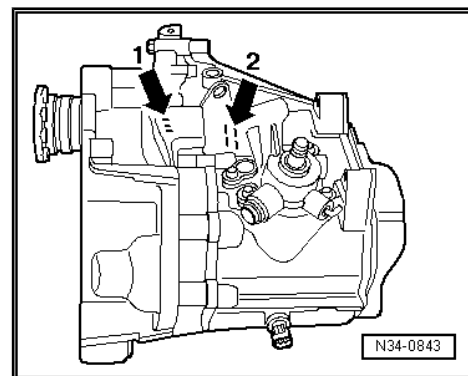
The 5-speed manual gearbox 02T is fitted in conjunction with 4-cylinder injection engines in the Audi A2 2001 ▶.

Allocation ⇒ [page 1](#).

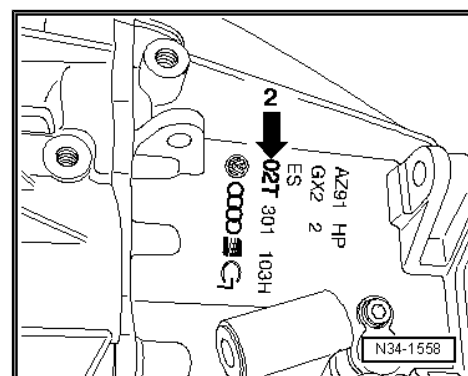
1.1 Location on gearbox

Code letters and date of manufacture -arrow 1-, manual gearbox 02T -arrow 2-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Manual gearbox 02T -arrow 2-



Code letters and date of manufacture of gearbox

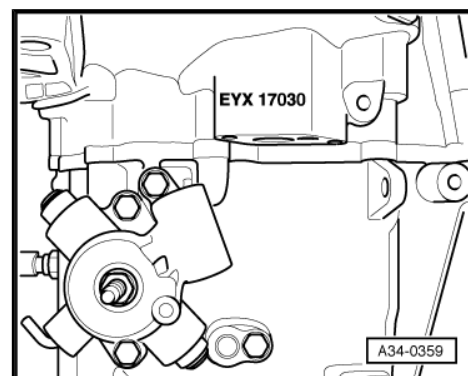
Example:	EYX	17	03	0
	Code letters	Day	Month	Year -2000- of manufacture

Additional data are manufacture-related.



Note

The gearbox code letters are also given on the vehicle data stickers.



1.2 Code letters, allocation, transmission ratios, capacities

Manual gearbox		5-speed 02T		
Code letters		EYX	FDM	FCU
Manufactured	From	11.99	10.00	09.01
	to	09.00	07.01	05.02
Allocation	Model	Audi A2 2001 ▶	Audi A2 2001 ▶	Audi A2 2001 ▶
	Engine	1.4 ltr. - 55 kW	1.4 ltr. - 55 kW	1.4 ltr. - 55 kW



Manual gearbox		5-speed 02T		
Transmission ratio: $Z_2:Z_1$	Final drive	66 : 17 = 3.882	66 : 17 = 3.882	66 : 17 = 3.882
	1st gear	38 : 11 = 3.455	38 : 11 = 3.455	38 : 11 = 3.455
	2nd gear	44 : 21 = 2.095	44 : 21 = 2.095	44 : 21 = 2.095
	3rd gear	43 : 31 = 1.387	43 : 31 = 1.387	43 : 31 = 1.387
	4th gear	40 : 39 = 1.026	40 : 39 = 1.026	40 : 39 = 1.026
	5th gear	39 : 48 = 0.813	39 : 48 = 0.813	39 : 48 = 0.813
	Reverse gear	35 : 24 x 24 : 11 = 3.182	35 : 24 x 24 : 11 = 3.182	35 : 24 x 24 : 11 = 3.182
	Speedometer	electronic		
i_{ov} in top gear	3.154	3.154	3.154	
Capacity	1.9 ltr.			
Clutch actuation	Hydraulic			
• The following data can be found in the ⇒ Electronic parts catalogue . ◆ Gear oil specification ◆ Correct type of flange shafts ◆ Correct type of clutch plate and pressure plate				

Manual gearbox		5-speed 02T		
Code letters		FVT	GCD	GDL
Manufactured	From	07.01	05.02	05.02
	to	09.01	10.02	06.02
Allocation	Model	Audi A2 2001 ▶	Audi A2 2001 ▶	Audi A2 2001 ▶
	Engine	1.4 ltr. - 55 kW	1.6 ltr. - 81 kW	1.4 ltr. - 55 kW
Transmission ratio: Z ₂ :Z ₁	Final drive	66 : 17 = 3.882	59 : 15 = 3.933	66 : 17 = 3.882
	1st gear	38 : 11 = 3.455	38 : 11 = 3.455	38 : 11 = 3.455
	2nd gear	44 : 21 = 2.095	44 : 21 = 2.095	44 : 21 = 2.095
	3rd gear	43 : 31 = 1.387	43 : 31 = 1.387	43 : 31 = 1.387
	4th gear	40 : 39 = 1.026	40 : 39 = 1.026	40 : 39 = 1.026
	5th gear	39 : 48 = 0.813	39 : 48 = 0.813	39 : 48 = 0.813
	Reverse gear	35 : 24 x 24 : 11 = 3.182	35 : 24 x 24 : 11 = 3.182	35 : 24 x 24 : 11 = 3.182
	Speedometer	electronic		
i _{ov} in top gear		3.154	3.197	3.154
Capacity		1.9 ltr.		
Clutch actuation		Hydraulic		
• The following data can be found in the ⇒ Electronic parts catalogue .				
◆ Gear oil specification				
◆ Correct type of flange shafts				
◆ Correct type of clutch plate and pressure plate				

Manual gearbox		5-speed 02T		
Code letters		GET	GKT	GKZ
Manufactured	From	06.02	11.02	11.02
	to	10.02	04.03	04.03
Allocation	Model	Audi A2 2001 ▶	Audi A2 2001 ▶	Audi A2 2001 ▶
	Engine	1.4 ltr. - 55 kW	1.4 ltr. - 55 kW	1.6 ltr. - 81 kW
Transmission ratio: Z ₂ :Z ₁	Final drive	66 : 17 = 3.882	66 : 17 = 3.882	59 : 15 = 3.933
	1st gear	38 : 11 = 3.455	38 : 11 = 3.455	38 : 11 = 3.455
	2nd gear	44 : 21 = 2.095	44 : 21 = 2.095	44 : 21 = 2.095
	3rd gear	43 : 31 = 1.387	43 : 31 = 1.387	43 : 31 = 1.387
	4th gear	40 : 39 = 1.026	40 : 39 = 1.026	40 : 39 = 1.026
	5th gear	39 : 48 = 0.813	39 : 48 = 0.813	39 : 48 = 0.813
	Reverse gear	35 : 24 x 24 : 11 = 3.182	35 : 24 x 24 : 11 = 3.182	35 : 24 x 24 : 11 = 3.182
	Speedometer	electronic		
i _{ov} in top gear		3.156	3.156	3.197
Capacity		1.9 ltr.		
Clutch actuation		Hydraulic		
• The following data can be found in the ⇒ Electronic parts catalogue . ◆ Gear oil specification ◆ Correct type of flange shafts ◆ Correct type of clutch plate and pressure plate				

Manual gearbox		5-speed 02T		
Code letters		GRZ	GSK	
Manufactured	From	05.03	05.03	
	to			
Allocation	Model	Audi A2 2001 ▶	Audi A2 2001 ▶	
	Engine	1.4 ltr. - 55 kW	1.6 ltr. - 81 kW	
Transmission ratio: Z ₂ :Z ₁	Final drive	66 : 17 = 3.882	59 : 15 = 3.933	
	1st gear	38 : 11 = 3.455	38 : 11 = 3.455	
	2nd gear	44 : 21 = 2.095	44 : 21 = 2.095	
	3rd gear	43 : 31 = 1.387	43 : 31 = 1.387	
	4th gear	40 : 39 = 1.026	40 : 39 = 1.026	
	5th gear	39 : 48 = 0.813	39 : 48 = 0.813	
	Reverse gear	35 : 24 x 24 : 11 = 3.182	35 : 24 x 24 : 11 = 3.182	
	Speedometer	electronic		
i _{ov} in top gear		3.156	3.197	
Capacity		1.9 ltr.		
Clutch actuation		Hydraulic		



Manual gearbox	5-speed 02T
• The following data can be found in the ⇒ Electronic parts catalogue . ◆ Gear oil specification ◆ Correct type of flange shafts ◆ Correct type of clutch plate and pressure plate	



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

2 Transmission layout

2.1 Identification and ratio



Note

-Arrows- point in direction of travel.

1 - Engine

2 - Clutch

3 - Manual gearbox

4 - Input shaft

5 - Output shaft/pinion shaft

6 - Differential

I - 1st gear

II - 2nd gear

III - 3rd gear

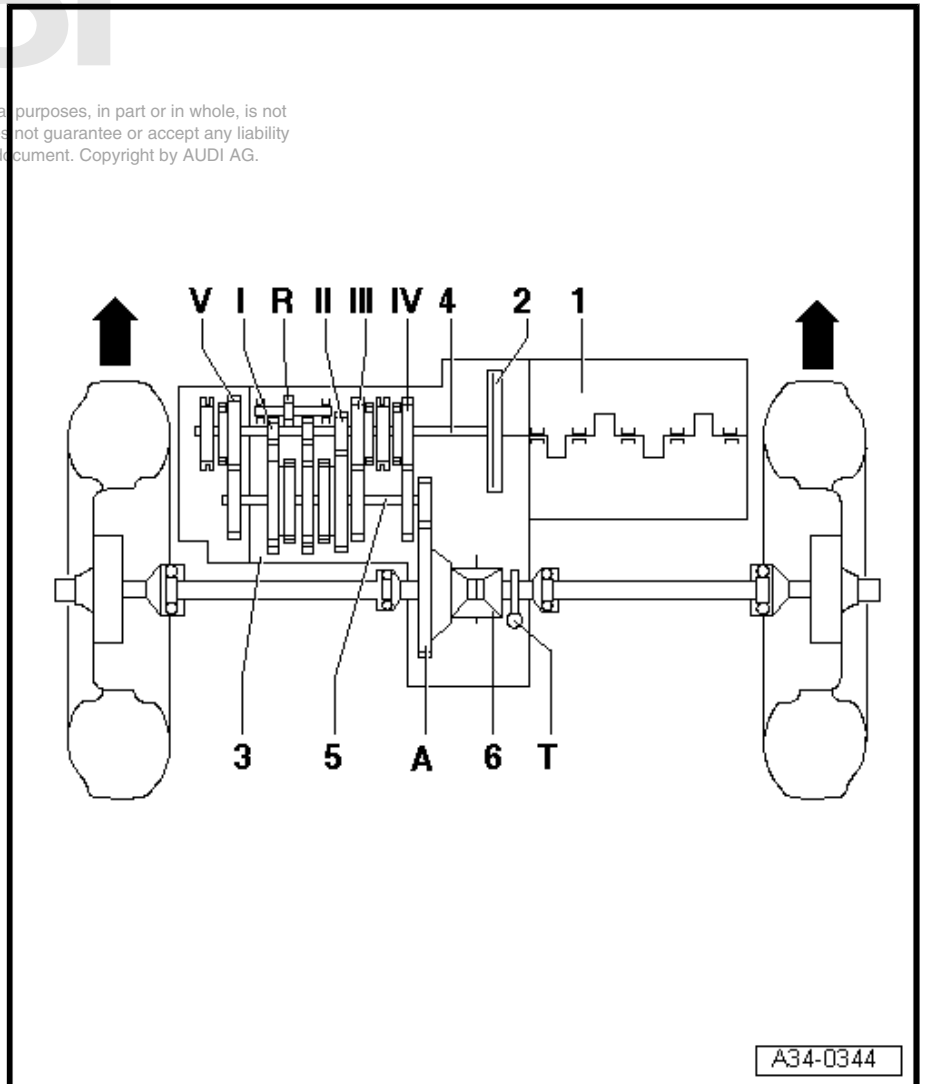
IV - 4th gear

V - 5th gear

R - Reverse gear

A - Final drive

T - Speedometer drive



2.2 Calculating ratio "i"

Transmission ratio

Transmission ratio = No. of teeth on driven gear : No. of teeth on drive gear

Ratios	Formula
i_G = Gear ratio	$Z_{G2} : Z_{G1}$
i_A = Axle ratio	$Z_{A2} : Z_{A1}$



Ratios	Formula
i_{ov} = Overall ratio	$i_G \times i_A$

Example:

	5th gear	Final drive
Drive gear	$ZG_1 = 48$	$ZA_1 = 17$
Driven gear	$ZG_2 = 39$	$ZA_2 = 66$

Calculations:

$$i_G = 39 : 48 = 0.813$$

$$i_A = 66 : 17 = 3.882$$

$$i_{ov} = 0.813 \times 3.882 = 3.156$$



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

3 Repair instructions

3.1 Contact corrosion!

Contact corrosion can occur if non-approved fasteners (bolts, nuts, washers), rivets, plugs, grommets, adhesives, etc. are used on the vehicle.

For this reason the manufacturer installs only fasteners with a special surface coating (Dachromet). These parts can be identified by their greenish colour.

Rubber, plastic and adhesives also consist of non-conductive materials.

These approved parts resist contact corrosion and are compatible with aluminium. They are also sold as spare parts.

If you are not sure whether used parts can be re-installed, always fit new parts.



WARNING

- ◆ *Only use Audi Genuine parts.*
- ◆ *Accessories must be approved by AUDI AG.*
- ◆ *Damage caused by contact corrosion is not covered under warranty.*

3.2 General repair instructions

Proper tools and the maximum possible care and cleanliness are essential for satisfactory gearbox repairs. The usual basic safety precautions also naturally apply when carrying out repair work.

A number of generally applicable instructions for the various repair procedures - which were previously repeated at numerous places in the Workshop Manual - are summarised here. They apply to the work described in this Manual.

Special tools

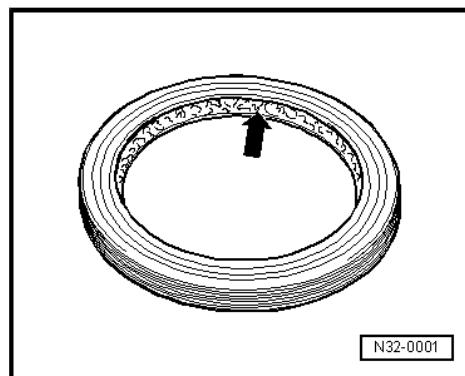
For a complete list of special tools used in this Workshop Manual
⇒ "Special tools, Workshop equipment"

Gearbox

- ◆ When installing manual gearbox, ensure that the dowel sleeves between the engine and the gearbox are correctly located.
- ◆ When renewing a gearbox, fill with gear oil to the bottom lip of filler hole. Checking gear oil level ⇒ [page 57](#).
- ◆ Capacity ⇒ [page 1](#).
- ◆ For gear oil specification, refer to ⇒ Electronic parts catalogue.

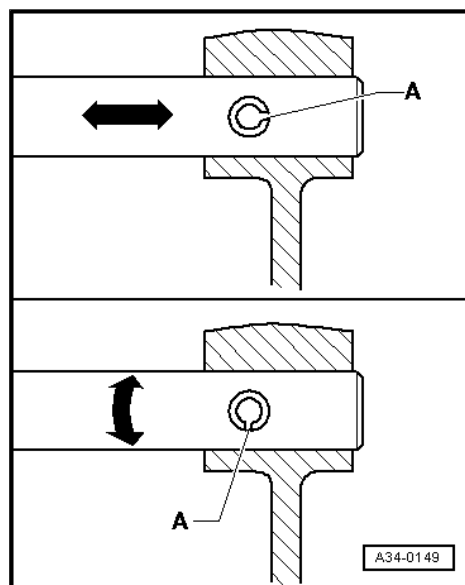
O-rings, oil seals and gaskets

- ◆ Always renew O-rings, seals and gaskets.
- ◆ After removing gaskets and seals, always inspect the contact surface on the housing or shaft for burrs resulting from removal or for other signs of damage.
- ◆ Clean joints thoroughly and apply sealant -AMV 188 200 03- .
- ◆ Apply sealant evenly but not too thickly.
- ◆ Before installing oil seals, lightly oil the outer circumference of the seal and fill the space between the sealing lips -arrow- about half full with grease -G 052 128 A1- .
- ◆ The open side of the oil seals faces toward the side with fluid filling.
- ◆ When installing a new oil seal, position the seal in the housing so that the sealing lip does not contact the shaft in the same place as the old seal (make use of installation depth tolerances).
- ◆ Lightly lubricate O-rings before installation to prevent them from being trapped and damaged during assembly.
- ◆ After renewing seals and gaskets, check and, if necessary, top up oil level in final drive ⇒ [page 57](#) ; gear oil specification ⇒ Electronic parts catalogue .



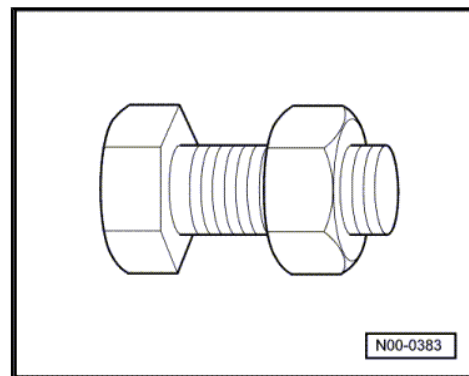
Locking elements

- ◆ Do not over-stretch circlips.
- ◆ Always renew circlips which have been damaged or over-stretched.
- ◆ Circlips must be properly seated in the base of the groove.
- ◆ Renew spring pins. Position: the slit -A- should be in line with the line of force -arrow-.



Nuts, bolts

- ◆ Loosen the nuts and bolts in reverse sequence to the specified tightening sequence.
- ◆ Nuts and bolts which secure covers and housings should be loosened and tightened in diagonal sequence and in stages if no tightening sequence is specified.
- ◆ Loosen and tighten particularly sensitive parts in diagonal sequence and in stages, taking care to keep them straight.
- ◆ The tightening torques stated apply to non-oiled nuts and bolts.
- ◆ Always renew self-locking bolts and nuts.
- ◆ For all threaded connections, ensure that (where applicable) the contact surfaces and the nuts and bolts are not coated with wax until after assembly is completed.
- ◆ Use thread tap to remove remains of locking fluid from all threaded holes in which self-locking bolts are to be screwed. Otherwise there is a risk that the bolts will shear off the next time they are removed.



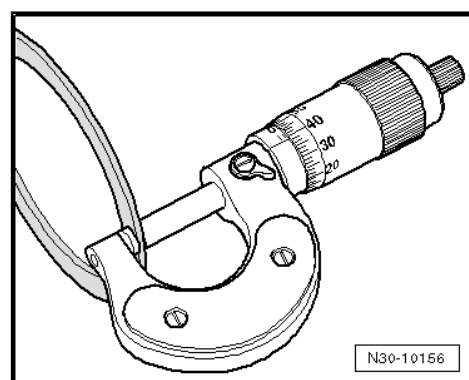
Bearings

- ◆ Install new tapered roller bearings as supplied; do not lubricate additionally with oil.
- ◆ Lubricate all bearings (except tapered roller bearings) with gear oil before installing in gearbox.
- ◆ Always renew the tapered roller bearings on one shaft together. Use new bearings from a single manufacturer wherever possible.
- ◆ Use inductive heater -VAS 6414- to heat inner races of tapered roller bearings to approx. 100°C before installing. Press home onto stop when installing so there is no axial clearance.
- ◆ Do not interchange the outer or inner races of bearings of the same size (the bearings are paired).
- ◆ Install needle bearings so the lettering (side with thicker metal) faces towards the installing tool.

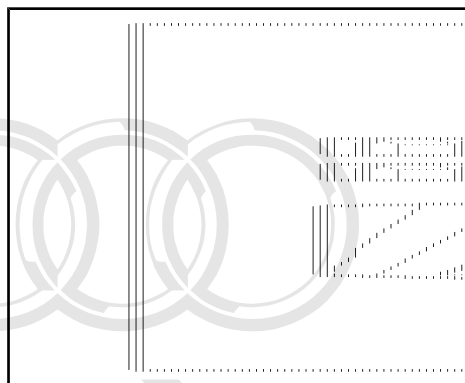
Shims

- ◆ Measure shims at several points with a micrometer. Tolerance variations make it possible to obtain the exact shim thickness required.
- ◆ Check for burrs and damage.
- ◆ Install only shims which are in perfect condition.

Synchro-rings



- ◆ Do not interchange. When re-using synchro-rings, always fit to the same gear wheel.
- ◆ Check for wear (gap -a-); renew if necessary.
- ◆ Check grooves on synchro-ring for wear (flattened sections in grooves).
- ◆ Make sure that the coating of coated synchro-rings is not damaged.
- ◆ Check chamfer on selector gear for scoring and visible traces of wear.
- ◆ Lubricate synchro-rings with gear oil before installing.



Gears, synchronising hubs, inner rings for selector gears

- ◆ Before installing, heat inner rings for selector gears to approx. 100° C using inductive heater -VAS 6414- .
- ◆ Use inductive heater -VAS 6414- to heat gear wheels and synchronising hubs to approx. 100°C before installing. Press home onto stop when installing so there is no axial clearance.
- ◆ Note correct installation position.

Selector gears

After installing, check 1st to 5th selector gears for minimal axial play and freedom of movement.

Clutch actuation

- ◆ When removing gearbox, remove clutch slave cylinder without disconnecting pipes.
- ◆ Do not depress the clutch pedal after removing the clutch slave cylinder if the hydraulic pipe is still connected. Otherwise the piston will be pressed out of the clutch slave cylinder.
- ◆ Ensure that the pressure plate is kept straight: loosen and tighten bolts in a diagonal sequence and in several gradual stages.
- ◆ If the clutch pedal does not return to its initial position after releasing it (clutch pedal in rest position), you must bleed the clutch system (further measures ⇒ ["1.1 Checking hydraulic clutch mechanism", page 11](#)).
- ◆ If the clutch has burnt out, thoroughly clean the bell housing, flywheel and parts of the engine facing the gearbox in order to prevent odours.

30 – Clutch

1 Servicing clutch mechanism

⇒ [“1.1 Checking hydraulic clutch mechanism”, page 11](#)

⇒ [“1.2 Exploded view - pedal cluster”, page 12](#)

⇒ [“1.3 Removing and installing over-centre spring”, page 14](#)

⇒ [“1.4 Removing and installing clutch pedal”, page 14](#)

⇒ [“1.5 Exploded view - hydraulic system”, page 15](#)

⇒ [“1.6 Removing and installing clutch master cylinder”, page 17](#)

⇒ [“1.7 Removing and installing clutch slave cylinder”, page 20](#)

⇒ [“1.8 Bleeding clutch system”, page 21](#)



Note

- ◆ *Before renewing the clutch master cylinder or clutch slave cylinder on the assumption that it is defective you must first check the clutch mechanism ⇒ [page 11](#).*
- ◆ *Disconnect battery earth strap.*
- ◆ *Note radio coding for vehicles with coded radio.*
- ◆ *Apply polycarbamide grease -G 052 142 A2- to all bearings and contact surfaces.*
- ◆ *Make sure that no brake fluid escapes into the footwell, the plenum chamber or onto the gearbox below. If this does happen, clean the affected area thoroughly.*
- ◆ *Before working on pedal cluster, remove driver's storage compartment ⇒ Rep. Gr. 68.*

1.1 Checking hydraulic clutch mechanism

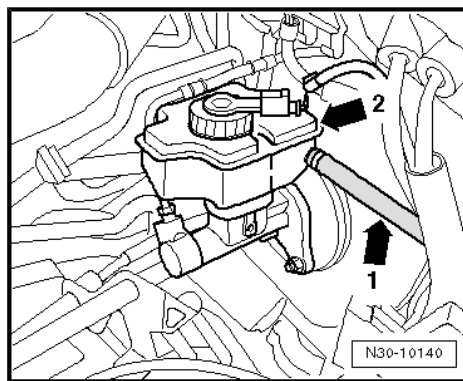
- Make sure the pedal returns to its initial position and is not obstructed by additional floor mats or mats that have slipped out of position.
- Bleed the clutch system if necessary.

- First check brake fluid level in brake fluid reservoir.



Note

- ◆ *The clutch hydraulics are connected to one of the chambers -arrow 2- of the brake fluid reservoir via the supply hose -arrow 1-.*
- ◆ *If this chamber is empty or contains too little brake fluid, the system may be leaking.*
- Then check the following components of the hydraulic clutch mechanism for external leaks:
 - ◆ Supply hose between brake fluid reservoir and clutch master cylinder
 - ◆ Clutch master cylinder
 - ◆ Pipe/hose assembly between clutch master cylinder and clutch slave cylinder
 - ◆ Connections (plug-in connectors and threaded connections), including hidden connections
 - ◆ Clutch slave cylinder

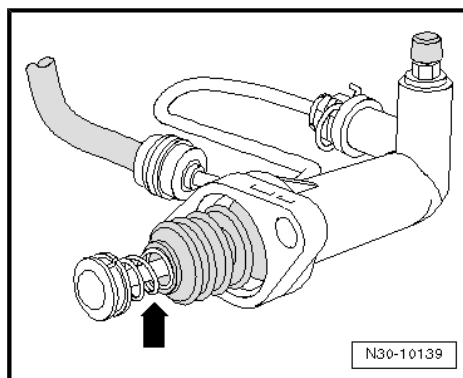


Note

- ◆ *External leaks can be detected, for instance, by traces of brake fluid on or below the gearbox as well as on the noise insulation panel below the gearbox.*
- ◆ *Check correct routing of pipe/hose assembly between clutch master cylinder and clutch slave cylinder. The pipe/hose assembly must not be kinked or become trapped.*

Copyright by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without the express written permission of Audi AG. Audi AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by Audi AG.

- Then depress clutch pedal carefully; hold pedal in five different positions for approx. 20 seconds at each position over its full travel. Have a second person check the components of the hydraulic clutch mechanism ⇒ [page 12](#) for visible leaks. At the same time the first person should check whether the clutch pedal yields under the foot at any of the held positions.
- Finally, detach clutch slave cylinder from gearbox (do not open pipe connections) and check sleeve for traces of escaped brake fluid.
- Detach sleeve from plunger -arrow- to check for leaks.



1.2 Exploded view - pedal cluster

1 - Bulkhead

- ☐ With mounting for mounting bracket and clutch master cylinder

2 - Gasket

- ☐ Always renew

3 - Mounting bracket

- ☐ For mounting clutch pedal

4 - Bolt

5 - Mounting bracket

- ☐ For mounting accelerator pedal and brake pedal

6 - Nut

- ☐ 28 Nm
- ☐ Self-locking
- ☐ Always renew

7 - Connecting plate

8 - Nut

- ☐ 28 Nm
- ☐ Self-locking
- ☐ Always renew

9 - Bearing bush

10 - Pivot pin

11 - Clutch pedal

- ☐ Removing and installing
⇒ [page 14](#)

12 - Retaining clip

- ☐ Removing and installing ⇒ [Item 6 \(page 16\)](#)

13 - Hexagon nuts or hexagon bolts

- ☐ 28 Nm

14 - Clutch master cylinder

- ☐ Removing and installing ⇒ [page 17](#)

15 - Supply hose

16 - Over-centre spring

- ☐ Removing and installing ⇒ [page 14](#)

17 - Over-centre spring mounting

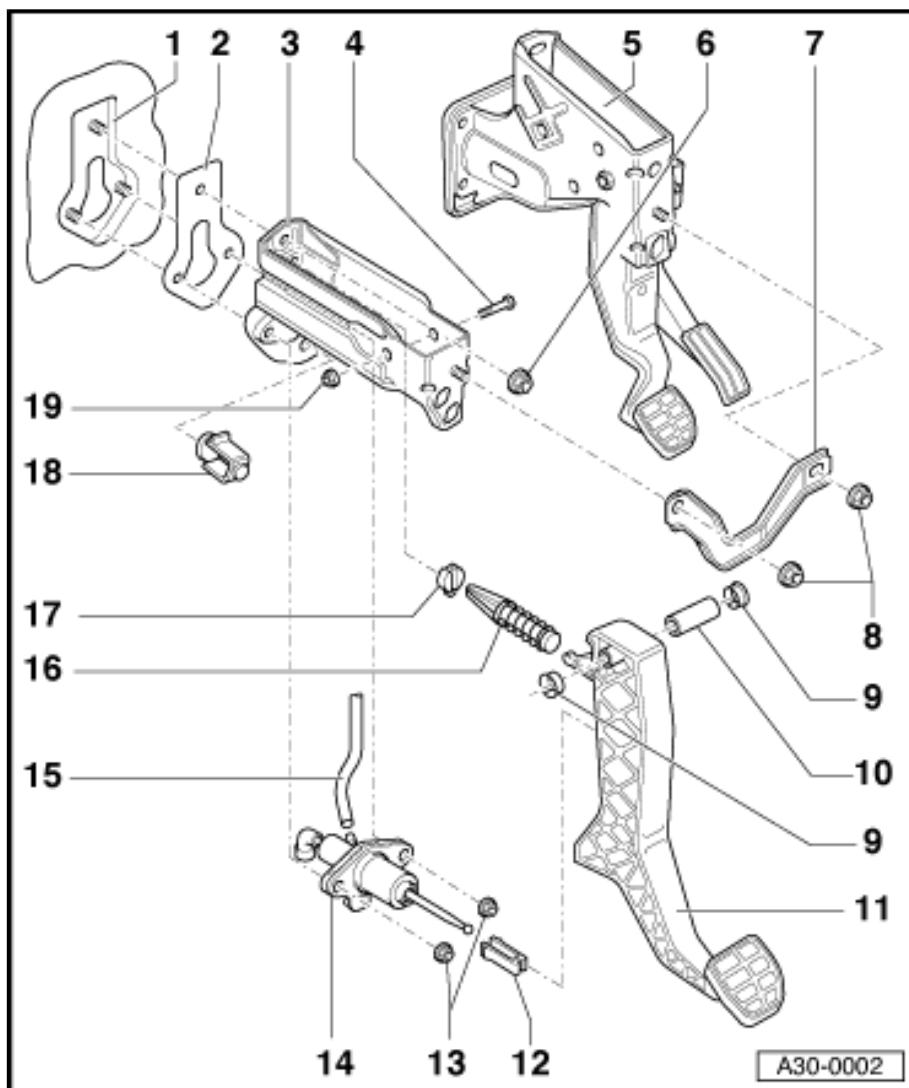
- ☐ Install in mounting bracket
- ☐ When renewing, remove and install clutch master cylinder ⇒ [page 17](#)

18 - Stop

- ☐ For clutch pedal
- ☐ Installation position ⇒ [page 19](#)

19 - Nut

- ☐ 25 Nm
- ☐ Self-locking
- ☐ Always renew

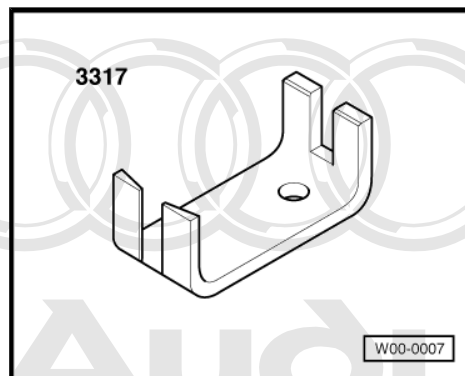


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1.3 Removing and installing over-centre spring

Special tools and workshop equipment required

- ◆ Assembly clip -3317-



Removing

- Remove storage compartment on driver's side ⇒ Rep. Gr. 68 .
- Tension over-centre spring with clutch pedal, at the same time pressing on assembly clip -3317- from above.



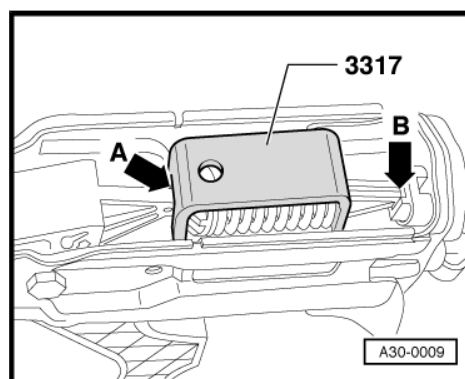
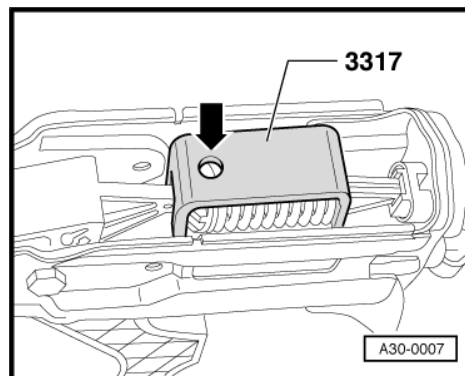
Note

The drilling -arrow- faces towards clutch pedal.

- Move clutch pedal to rest position and take out over-centre spring together with assembly clip -3317- .

Installing

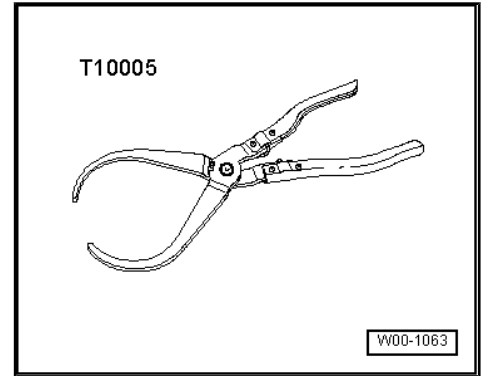
- Pull clutch pedal into the passenger compartment.
- Insert over-centre spring into rear mounting first -arrow B-, then operate clutch pedal until the assembly clip seats on the mounting lug -arrow A- of the clutch pedal.
- Return clutch pedal to normal position and remove assembly clip.



1.4 Removing and installing clutch pedal

Special tools and workshop equipment required

◆ Pliers -T10005-

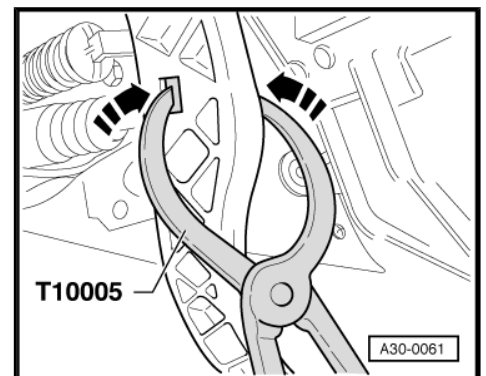


Removing

- Remove over-centre spring ⇒ [page 14](#) .

Release master cylinder operating rod from clutch pedal as follows:

- Position pliers -T10005- in the clutch pedal recesses.
- Press the mounting together -arrows- and separate the clutch pedal from the clutch master cylinder.

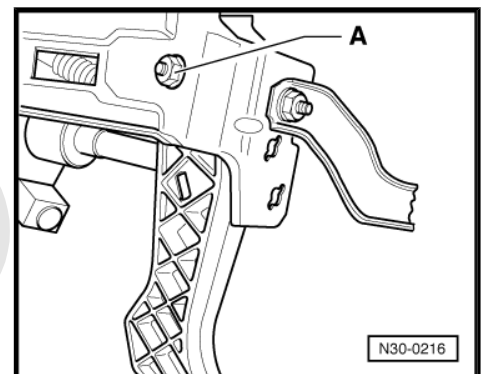


- Remove nut -A-.
- Pull out bolt until clutch pedal can be removed.

Installing

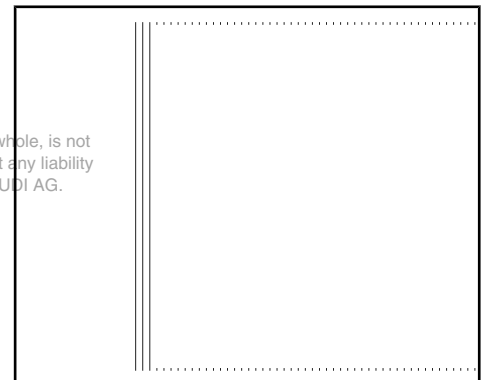
Installation is carried out in reverse sequence; note the following:

- Install over-centre spring ⇒ [page 14](#) .



- Retaining clip -A- must be fitted on operating rod -B- of clutch master cylinder.
- Press clutch pedal in -direction of arrow- until it engages. Ensure that it is properly locked.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



1.5 Exploded view - hydraulic system

1 - Brake fluid reservoir

2 - Supply hose

3 - Clip

- ☐ To remove pipe, pull out clip as far as limit stop

4 - Clutch master cylinder

- ☐ Removing and installing [⇒ page 17](#)

5 - Nut

- ☐ 28 Nm
- ☐ Self-locking
- ☐ Always renew

6 - Retaining clip

- ☐ Renew only when clutch master cylinder has been removed
- ☐ Removing [⇒ page 17](#)
- ☐ Pressing on [⇒ page 17](#)

7 - Clutch pedal

- ☐ Removing and installing [⇒ page 14](#)

8 - Bolt

- ☐ 28 Nm
- ☐ 2x

9 - O-ring

- ☐ Push onto pipe connection
- ☐ Lubricate with brake fluid before installing

10 - Pipe/hose assembly

- ☐ Disconnecting from clutch master cylinder and installing [⇒ page 18](#)
- ☐ Allocate according to ⇒ Electronic parts catalogue

11 - Bracket

- ☐ Secured on body

12 - Bolt

- ☐ 23 Nm

13 - Clip

- ☐ To remove pipe, pull out clip as far as limit stop

14 - Bleeder valve

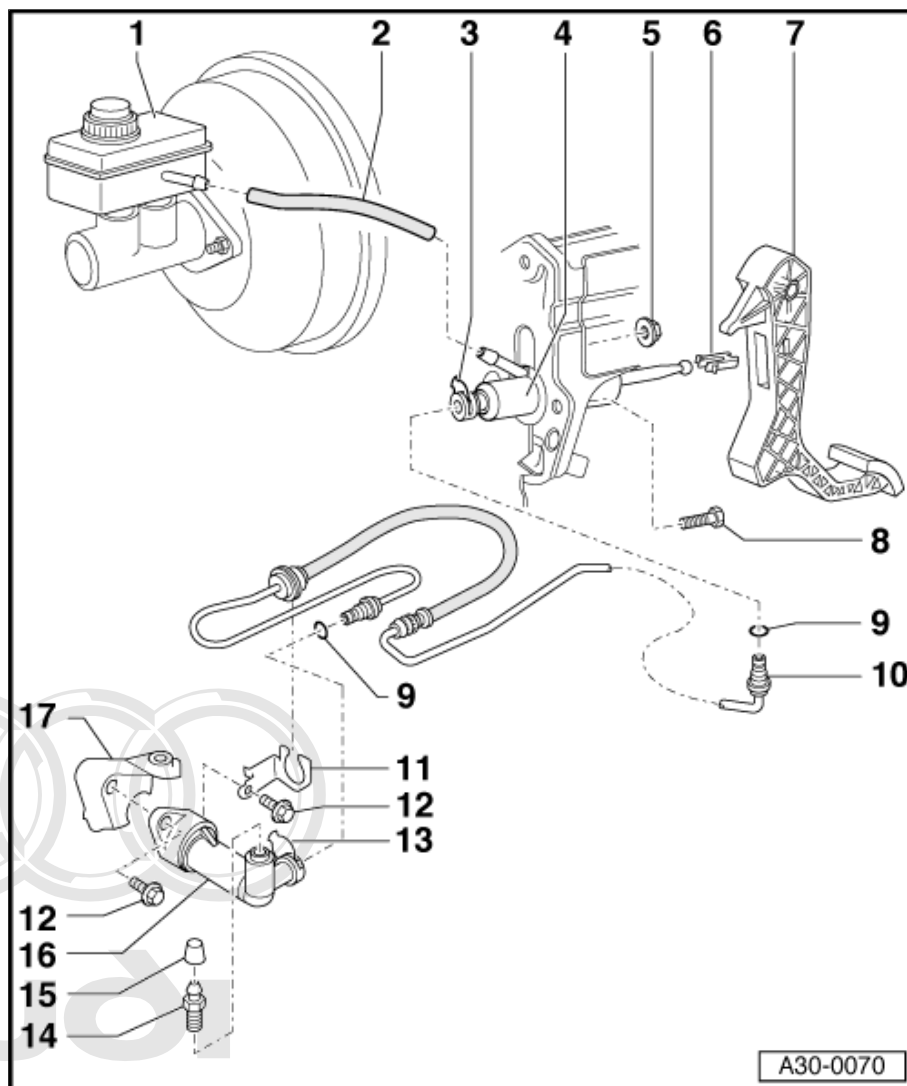
- ☐ Bleeding clutch system [⇒ page 21](#)

15 - Dust cap

16 - Clutch slave cylinder

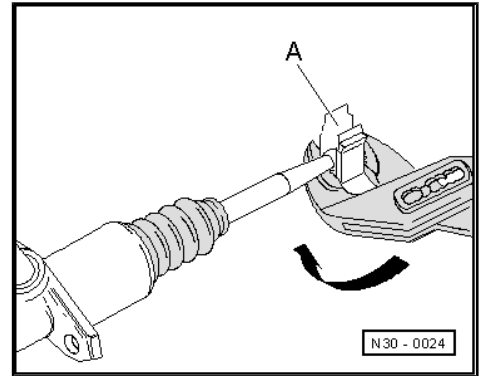
- ☐ Removing and installing [⇒ page 20](#)
- ☐ After installing, adjust selector mechanism [⇒ page 46](#)

17 - Gearbox

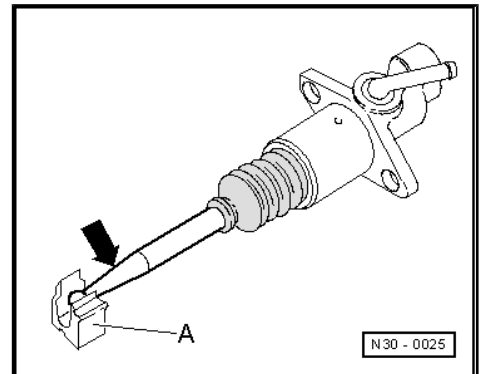


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without the written permission of AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Levering retaining clip -A- off in direction of arrow



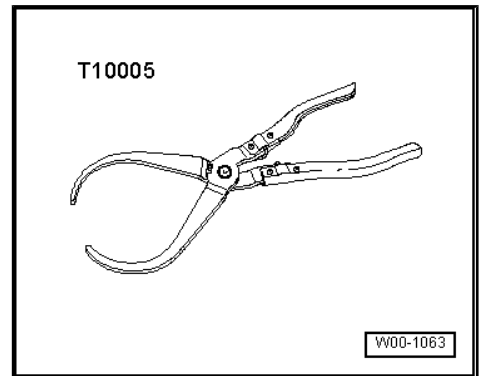
Pressing master cylinder operating rod into retaining clip -A- in -direction of arrow-



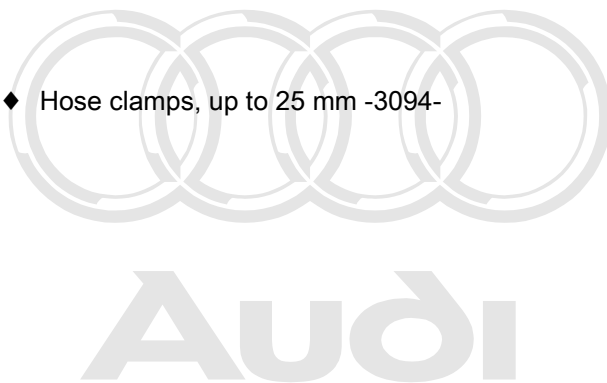
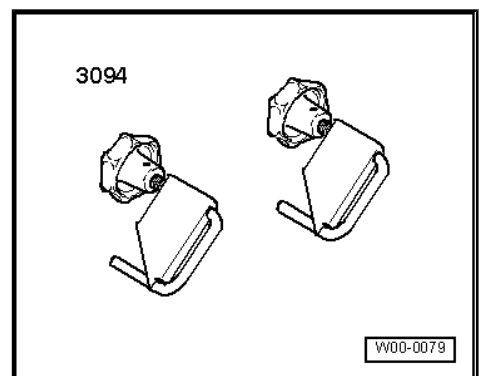
1.6 Removing and installing clutch master cylinder

Special tools and workshop equipment required

- ◆ Pliers -T10005-



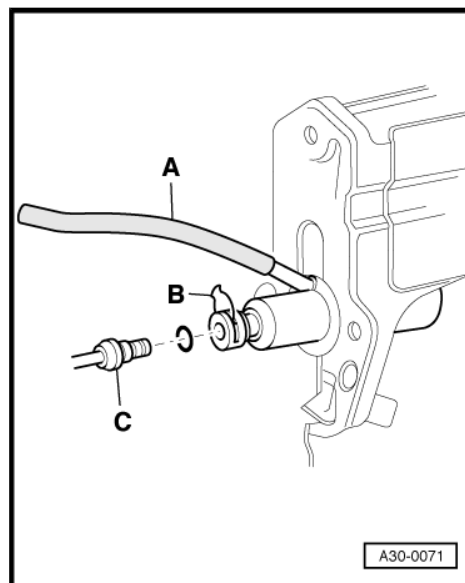
- ◆ Hose clamps, up to 25 mm -3094-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

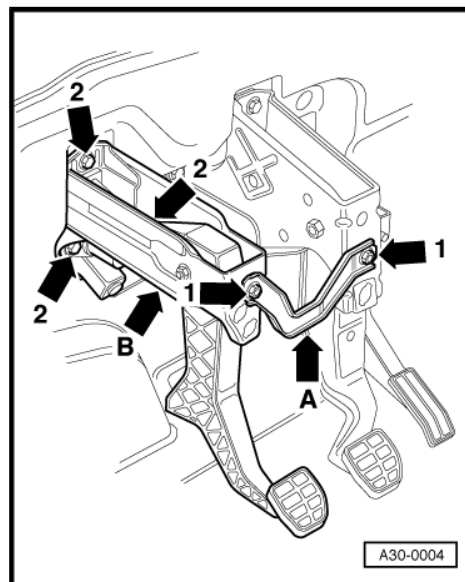
Removing

- Clamp off supply hose -A- coming from brake fluid reservoir using hose clamp, up to 25 mm -3094- .
- Disconnect supply hose -A- at clutch master cylinder.
- Pull clip -B- for pipe/hose assembly out of clutch master cylinder as far as stop.
- Pull pipe/hose assembly -C- out of clutch master cylinder and seal.
- Press in clip -B- back onto stop.
- Remove covers on driver's side (bottom) ⇒ Rep. Gr. 68 .



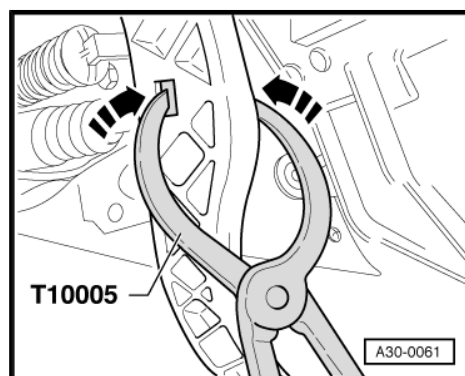
Now remove complete clutch pedal mounting bracket as follows:

- Remove securing nuts -arrows 1- and detach connecting plate -arrow A-.
- If fitted, disconnect cruise control system switch.
- Then remove securing nuts -arrows 2- for mounting bracket -B-.
- Take off mounting bracket.

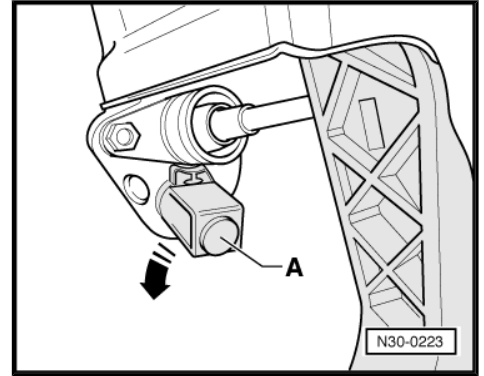


Release master cylinder operating rod from clutch pedal as follows:

- Position pliers -T10005- in the clutch pedal recesses.
- Press the mounting together -arrows- and separate the clutch pedal from the clutch master cylinder.



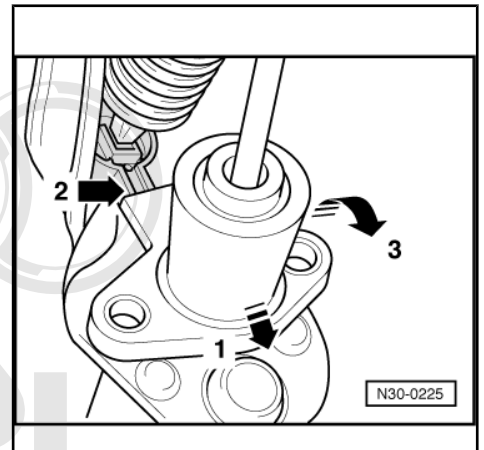
- Turn stop -A- for clutch pedal in direction of arrow and remove.



- Then push clutch slave cylinder in the direction of -arrow 1- onto stop.

It must not be covered in upper area by over-centre spring mounting -arrow 2-.

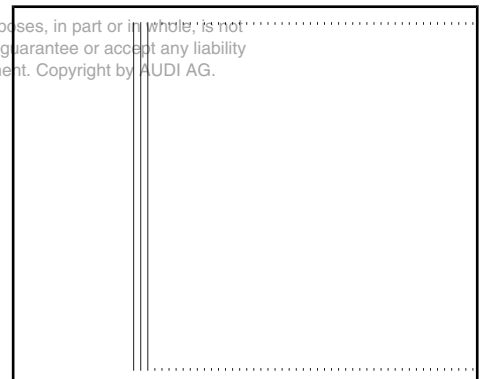
- Then swing clutch master cylinder in direction of -arrow 3- out of mounting bracket.



Installing

Installation is carried out in reverse sequence; note the following:

- Retaining clip -A- must be fitted on operating rod -B- of clutch master cylinder.
- Press clutch pedal in -direction of arrow- until it engages. Ensure that it is properly locked.

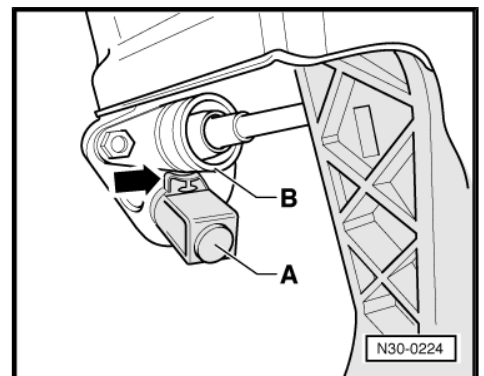


- Fit stop -A- for clutch pedal again.

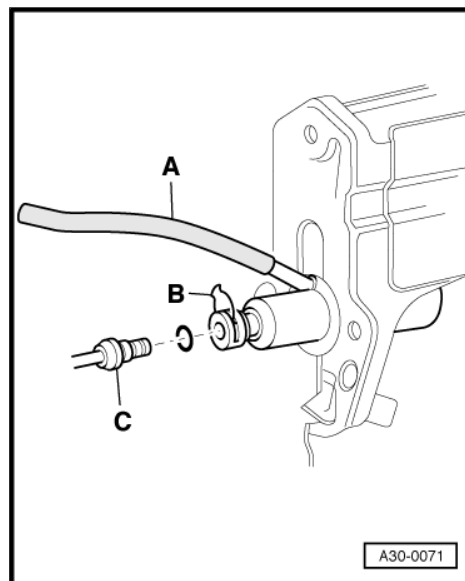
Installation position:

The arm -arrow- points towards clutch master cylinder -B-.

- Bleed clutch system after installing clutch master cylinder
⇒ [page 21](#) .



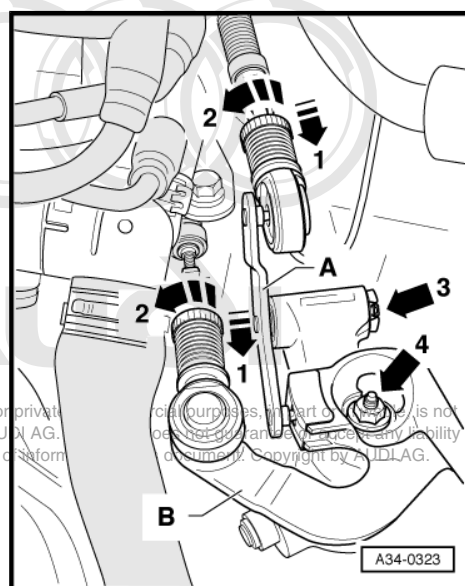
- Press in retaining clip -B- as far as stop.
- Push pipe -C- into clutch master cylinder until it engages audibly.
- Push supply hose -A- from brake fluid reservoir on as far as it will go.
- Bleed clutch system after installing clutch master cylinder
⇒ [page 21](#) .



1.7 Removing and installing clutch slave cylinder

Removing

- First check whether a coded radio is fitted. If this is the case obtain the anti-theft coding.
- With the ignition switched off, disconnect battery earth strap.
- Pull locking mechanism on gear selector cable and gate selector cable forwards -arrow 1- onto stop and then turn to left -arrow 2- to lock.
- Pull securing clip -arrow 3- off relay lever -A- and remove relay lever.
- Remove gearbox selector lever -B- by removing nut -arrow 4-.

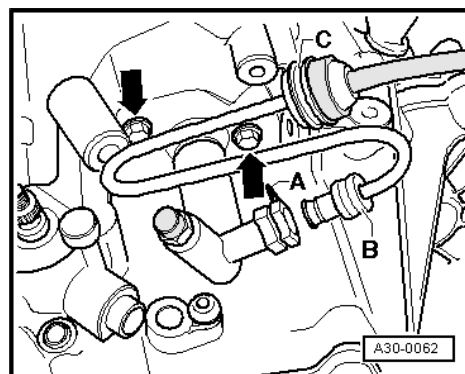


- Pull the hose/pipe assembly clip -A- out of the clutch slave cylinder up to the stop.
- Pull pipe/hose assembly -B- out of clutch slave cylinder and seal.
- Remove bolts for clutch slave cylinder -arrows-.
- Remove clutch slave cylinder.

Installing

Installation is carried out in reverse sequence; note the following:

- Lubricate end of plunger with MoS₂ grease.



- Bolt clutch slave cylinder to gearbox -arrows-.
- Press retaining clip -A- in as far as it will go.
- Push pipe -B- into clutch slave cylinder until it engages audibly.
- Fit selector components to gearbox.
- After installing clutch slave cylinder, bleed clutch system
⇒ [page 21](#) .

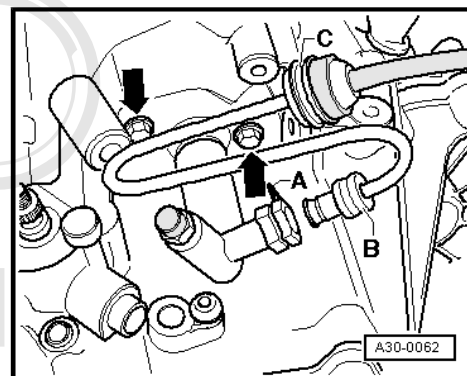
Adjusting selector mechanism ⇒ [page 46](#) .

Tightening torques

Clutch slave cylinder to gearbox 23 Nm

Gearbox selector lever to gearbox 20 Nm ¹⁾

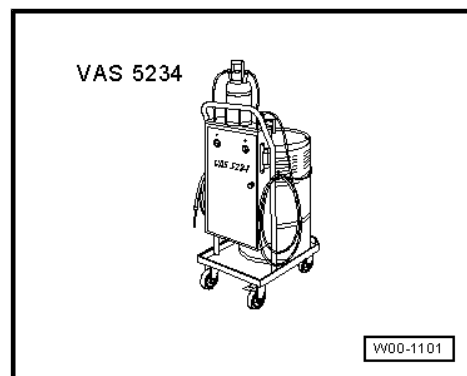
- ¹⁾ Renew nut



1.8 Bleeding clutch system

Special tools and workshop equipment required

- ◆ Brake filling and bleeding equipment -VAS 5234- or brake filling and bleeding equipment -V.A.G 1869-



- Brake fluid specification ⇒ Rep. Gr. 47

Procedure



Note

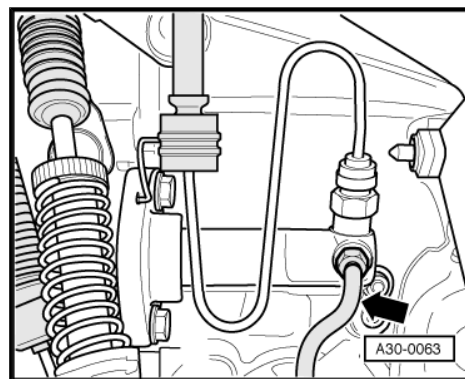
- ◆ *Open the bleeder valve before switching on the bleeding appliance.*
- ◆ *When performing the following steps, make sure that no brake fluid escapes onto the gearbox.*
- ◆ *The clutch system must be bled after performing work on the hydraulic clutch mechanism.*
- ◆ *Before bleeding the clutch system, pull back the clutch pedal to the normal position and top up brake fluid to "Max" marking on brake fluid reservoir.*
- ◆ *The clutch system should be bled at the same intervals as the brake system.*
- Connect brake filling and bleeding equipment -V.A.G 1869- or -VAS 5234- , but do not switch on at this stage.
- To bleed system, use 670 mm bleeder hose -V.A.G 1238/B3- if necessary.
- Then connect bleeder hose to collector bottle of brake bleeding unit.

- Connect bleeder hose to clutch slave cylinder -arrow- and open bleeder valve.
- Switch on bleeder appliance and allow about 100 cm³ of brake fluid to drain out.
- Operating pressure 2 bar

**Note**

Ensure bleeder hose is correctly fitted during bleeding operation.

- Close bleeder valve.
- Depress clutch pedal several times after bleeding process is completed.
- Repeat bleeding procedure if necessary.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

2 Servicing clutch release mechanism

1 - Release bearing

- ☐ Do not wash out bearing; wipe clean only
- ☐ Renew bearing if noisy
- ☐ Lubricate surfaces which contact release lever with MoS₂ grease
- ☐ Remove and install together with clutch release lever
⇒ [Item 3 \(page 23\)](#)
and guide sleeve
⇒ [Item 5 \(page 23\)](#)
⇒ [page 24](#) to
⇒ [page 24](#)

2 - Bolt

- ☐ 5 Nm and turn 90° further
- ☐ Always renew

3 - Clutch release lever

- ☐ Remove and install together with clutch release bearing
⇒ [Item 1 \(page 23\)](#) and guide sleeve
⇒ [Item 5 \(page 23\)](#)
⇒ [page 24](#) to
⇒ [page 24](#)
- ☐ Lubricate surface which contacts ball head stud with MoS₂ grease

4 - Retaining spring

- ☐ Secure to clutch release lever

5 - Guide sleeve

- ☐ Remove and install together with clutch release bearing ⇒ [Item 1 \(page 23\)](#) and clutch release lever
⇒ [Item 3 \(page 23\)](#) ⇒ [page 24](#) to ⇒ [page 24](#)

6 - Input shaft oil seal

- ☐ Renewing ⇒ [Item 2 \(page 74\)](#)

7 - Ball head stud

- ☐ 20 Nm
- ☐ Lubricate with MoS₂ grease

8 - Gearbox

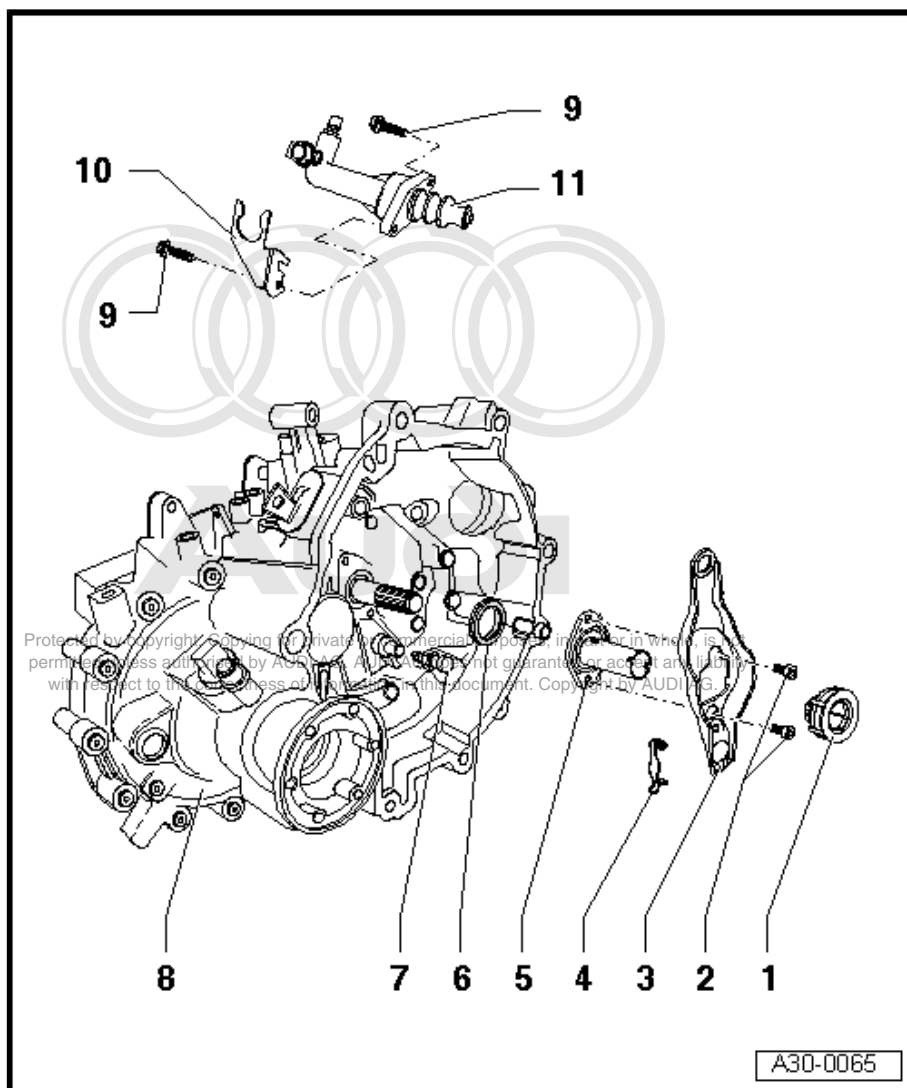
9 - Bolt

- ☐ 23 Nm

10 - Bracket

11 - Clutch slave cylinder

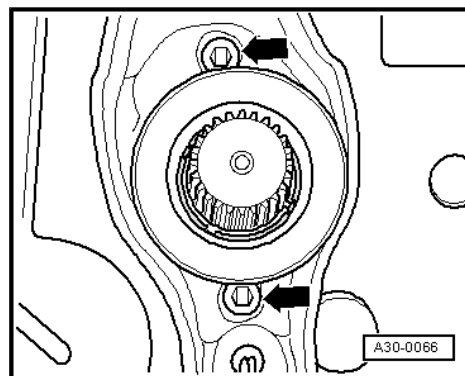
- ☐ Removing and installing ⇒ [page 20](#)
- ☐ Lubricate end of plunger with MoS₂ grease



Removing and installing clutch release lever with clutch release bearing and guide sleeve

- Remove bolts -arrows-.
- Pull off clutch release lever with release bearing and guide sleeve from input shaft and ball head stud.

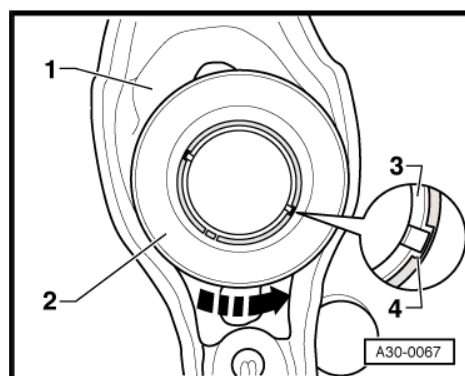
Perform installation in reverse sequence of removal.



Removing and installing guide sleeve

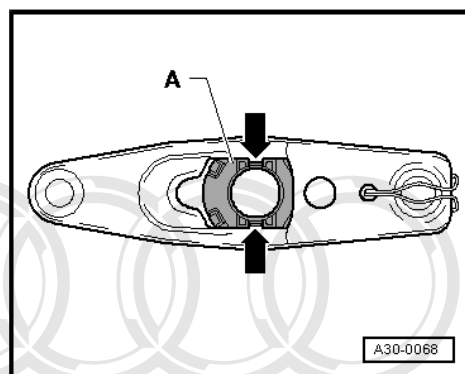
- Turn guide sleeve -3- 90° in direction of -arrow- against clutch release bearing -2- until locking lugs of guide sleeve locate in the grooves -4- of the clutch release bearing.
- In this position, pull the guide sleeve out of the clutch release bearing.

Perform installation in reverse sequence of removal.



Removing and installing clutch release bearing

- Press locking lugs -arrows- together and remove clutch release bearing -A- from clutch release lever.
- To install, press release bearing -A- into clutch release lever until locking lugs -arrows- engage.



Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

3 Servicing clutch

⇒ [“3.1 Fault-finding on power transmission - complaints regarding defects on the clutch and clutch mechanism”, page 25](#)

⇒ [“3.2 Servicing clutch - exploded view”, page 30](#)

⇒ [“3.3 Removing and installing clutch”, page 32](#)

3.1 Fault-finding on power transmission - complaints regarding defects on the clutch and clutch mechanism



Note

Checking clutch mechanism ⇒ [page 11](#).

Before carrying out any clutch repairs, always check out the customer complaint and the trace the cause of the fault. Investigate in each case whether the fault is caused by a defective clutch mechanism or by incorrect adjustment of the selector mechanism.

Complaint	Fault description	Fault rectification
Clutch pedal does not return to original position by itself	♦ Air in hoses/pipes.	– Bleed pipes/hoses; top up with brake fluid.
	♦ Leak in pipes/hoses, clutch master cylinder or clutch slave cylinder.	– Renew defective component, bleed pipes/hoses; top up with brake fluid.
	♦ Clutch release bearing seized or sticking on guide sleeve.	– Renew guide sleeve and clutch release bearing.
	♦ Diaphragm spring of pressure plate is broken.	– Renew pressure plate.

Complaint	Fault description	Fault rectification
Excessive force is necessary to operate clutch pedal.	♦ Over-centre spring defective.	– Renew over-centre spring.
	♦ Increased clutch release pressure due to wear of clutch linings.	– Inform customer that clutch release force normally increases due to wear of clutch linings.
	♦ Clutch release bearing seized or sticking on guide sleeve.	– Renew clutch plate if the distance between clutch plate and rivets is less than 0.1 mm.
	♦ Pressure plate with incorrect type of spring.	– Renew defective components.
	♦ Mechanically defective pressure plate/clutch plate.	– Allocate pressure plate according to ⇒ Electronic parts catalogue
		– Renew defective components.

Complaint	Fault description	Fault rectification
	◆ Clutch plate does not move freely or is stuck on splines.	– Check hub splines for damage (burrs). Renew clutch plate if necessary. – Clean hub splines and input shaft to remove corrosion and remnants of grease and coat with grease for clutch plate splines -G 000 100-. Move clutch plate backwards and forwards and remove excess grease.

Complaint	Fault description	Fault rectification
Noises when operating the clutch	◆ Release bearing defective, release bearing not guided correctly, contact surface worn.	– Always renew release bearing if noisy. – Renew guide sleeves if damaged.
	◆ Contact surface (tips of diaphragm springs) of pressure plate defective (bent, broken). Contact point of release bearing off-centre.	– Renew pressure plate. – Check release bearing and guide sleeve, renew if necessary. – Check position of release lever. – Check dowel sleeves.
	◆ Engine/gearbox off-centre.	– Check dowel sleeves.
	◆ Clutch plate installed wrong way around.	– Install correctly.
	◆ Wrong clutch plate installed.	– Allocate clutch plate according to ⇒ Electronic parts catalogue .

Complaint	Fault description	Fault rectification
Grinding noises when engaging one of the forward gears or reverse gear; gear lever sticking, does not move freely; gears cannot be selected or clutch mechanism is without function	◆ Air in system, clutch does not disengage fully.	– Bleed system; check system, top up with brake fluid.
	◆ Leak in pipes/hoses, clutch master cylinder or clutch slave cylinder.	– Renew defective component, top up with brake fluid, bleed system.
	◆ Travel of clutch pedal is restricted (carpet, floor mat under pedal) it is not possible to floor clutch pedal	– Inform customer of the source of the fault.

Protected by copyright. All rights reserved. For internal use only. Not for distribution. Audi AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Complaint	Fault description	Fault rectification
	◆ Pressure plate is distorted due to incorrect installation, clutch plate deformed due to incorrect handling.	– Check components and renew if necessary, note position of centring pins. – If there is still a grinding noise, check clutch plate splines on input shaft for freedom of movement, repair gearbox if necessary.
	◆ Tips of diaphragm springs broken or bent (incorrect installation, release bearing off-centre).	– Renew pressure plate. – Check release bearing and guide sleeve, renew if necessary. – Check dowel sleeves.
	◆ Clutch plate too thick.	– Allocate clutch plate according to ⇒ Electronic parts catalogue .
	◆ Clutch lining sticking to flywheel (stored for a lengthy period of time, high humidity).	– Lightly grind off friction surfaces for clutch linings or renew components if corrosion is excessive.
	◆ Clutch plate does not move freely or is stuck on splines. Hub corroded, damaged during installation. Hub splines worn on one side.	– Check hub splines for damage. Renew clutch plate if necessary. – Remove traces of corrosion and grease from hub and shaft. Lightly coat shaft with grease for clutch plate splines - G 000 100- . – Move clutch plate backwards and forwards and remove excess grease. – Check position of dowel sleeves if hub splines are worn. – Check release bearing, guide sleeve and pressure plate, renew if necessary.
	◆ Pressure plate does not move away from flywheel far enough (wrong pressure plate installed).	– Allocate pressure plate according to ⇒ Electronic parts catalogue
	◆ Offset of engine/gearbox assembly above tolerance (dowel sleeves not fitted), support plate of clutch plate deformed.	– Insert dowel sleeves before fitting gearbox. – Check clutch plate and pressure plate for damage. Renew if necessary.
	◆ Clutch linings have become loose due to excessive speed (shifting into lower gear at high speed). ◆ Clutch linings have come loose due to excessive clutch slip when driving off.	– Renew clutch plate. Inform customer of the source of the fault.

Complaint	Fault description	Fault rectification
Load change shocks when accelerator is pressed briefly and when engine speed is reduced suddenly.	♦ Engine/gearbox mountings too soft.	– Inform customer of the source of the fault. Allocate mountings according to ⇒ Electronic parts catalogue , renew if necessary.
	♦ Uneven engine running.	– Check engine adjustments and rectify if necessary.
	♦ Clutch plate is fitted with damper to prevent loose gear rattling noises.	– Inform customer of the source of the fault.
	♦ Engine/gearbox off-centre.	– Check dowel sleeves and renew if necessary.

Complaint	Fault description	Fault rectification
Clutch slips, ineffective power transmission or vehicle does not move.	♦ Wrong clutch plate or wrong pressure plate installed.	– Allocate clutch plate and pressure plate according to ⇒ Electronic parts catalogue .
	♦ Clutch plate worn, burnt; pressure plate overheated, scores; pressure plate deformed due to incorrect installation; contact pressure of pressure plate insufficient; poor driving habits; normal wear.	– Renew clutch plate. – Renew pressure plate. – Inform customer of the source of the fault.
	♦ Oil on clutch plate, pressure plate, flywheel. Oil seal of engine or gearbox defective. Grease on contact surfaces due to excessive grease on hub.	– Renew clutch plate. – Clean contact surfaces of pressure plate and flywheel. – Renew oil seal, remove excessive grease from input shaft.
	♦ Clutch plate installed wrong way around.	– Install correctly, check clutch plate and renew if necessary.
	♦ Flywheel recessed too far or excessive wear on clutch contact surface.	– Allocate flywheel according to ⇒ Electronic parts catalogue . – Check clutch plate and pressure plate. Renew if necessary.
	♦ Leak in clutch slave cylinder.	– Renew clutch slave cylinder.

Complaint	Fault description	Fault rectification
Grabbing clutch, engine jolts	♦ Air in system.	– Bleed system, check brake fluid level, check system for leaks. – Renew defective component.
	♦ Uneven engine running.	– Check engine adjustments and rectify if necessary.
	♦ Poor driving habits, rpm too low when driving off.	– Inform customer of the source of the fault.
	♦ Wrong clutch plate installed.	– Allocate clutch plate according to ⇒ Electronic parts catalogue .

Protected by copyright. Copying for private or commercial purposes, in part or in full, is not permitted unless authorized by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of the information in this document. Copyright by AUDI AG.

Complaint	Fault description	Fault rectification
	♦ Engine/gearbox mountings too soft, worn.	– Check engine/gearbox mountings, if necessary allocate according to ⇒ Electronic parts catalogue .
	♦ Oil on clutch lining, contact surface of pressure plate and flywheel (oil escapes from clutch housing).	– Check oil seal for gearbox input shaft or crankshaft, renew if necessary. – Renew clutch plate, clean pressure plate and flywheel.
	♦ Clutch release bearing seized or sticking on guide sleeve (bearing applies pressure only on one side of diaphragm spring of pressure plate).	– Renew clutch release bearing and guide sleeve. – Check actuating components and mountings of actuating components.
	♦ Contact surface of pressure plate moves away only on one side due to seized release bearing. ♦ Pressure plate housing deformed during installation. Contact surface of pressure plate moves away only on one side.	– Check contact surface of clutch lining on flywheel, pressure plate and diaphragm spring, renew pressure plate if necessary. – Renew clutch release bearing and guide sleeve.
	♦ Excessive amount of grease applied to input shaft (traces of grease on clutch plate, pressure plate and flywheel).	– Remove grease on pressure plate and flywheel, renew components if damaged (marks caused by clutch judder, traces of overheating, scores). – Remove traces of grease from hub and shaft, apply a thin coat of grease for clutch plate splines -G 000 100- to shaft. – Move clutch plate backwards and forwards and remove excess grease.

Protected by copyright. Copying for private or commercial purposes without express permission is prohibited. Audi AG does not warrant the accuracy, reliability or completeness of the information in this document. Copyright by Audi AG.

Complaint	Fault description	Fault rectification
Clacking sound can be heard when releasing clutch pedal	♦ Mass of input shaft is accelerated due to sudden release of clutch pedal. Teeth of meshing gears knock; the noise is increased on clutch plates with damper due to the damper moving to the stop.	– Inform customer of the source of the fault.

Complaint	Fault description	Fault rectification
Noises can be heard when engine is idling	♦ Damper spring broken.	– Renew clutch plate.
	♦ Clutch plate installed without damper (rattling noises occur when engine is idling).	– Allocate clutch plate according to ⇒ Electronic parts catalogue .
	♦ Pressure plate deformed, broken, imbalance.	– Renew pressure plate.

Complaint	Fault description	Fault rectification
	◆ Uneven engine running.	– Check adjustment of engine and rectify if necessary.
	◆ Offset of engine/gearbox assembly above tolerance (dowel sleeves not fitted).	– Insert dowel sleeves before fitting gearbox.
	◆ Intermediate plate contacts fly-wheel.	– Engage intermediate plate at sealing flange and push onto dowel sleeves.

3.2 Servicing clutch - exploded view



Note

- ◆ Before renewing the clutch plate and pressure plate refer to Fault finding on power transmission - Complaints regarding clutch and clutch mechanism ⇒ [page 25](#) .
- ◆ Check that dowel sleeves for centralising engine/gearbox are in the cylinder block, install if necessary.
- ◆ If the dowel sleeves are not fitted, this will lead to gear-change problems, clutch malfunction and in some cases gearbox noise (gears will make rattling noises).
- ◆ Renew clutch plates and pressure plates if riveted fastening are damaged or loose.
- ◆ Allocate clutch plate and pressure plate according to ⇒ Electronic parts catalogue .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Flywheel

- ☐ Ensure that dowel pins fit tightly
- ☐ Contact surface for clutch lining must be free of scoring, oil and grease
- ☐ Removing and installing
⇒ Rep. Gr. 13

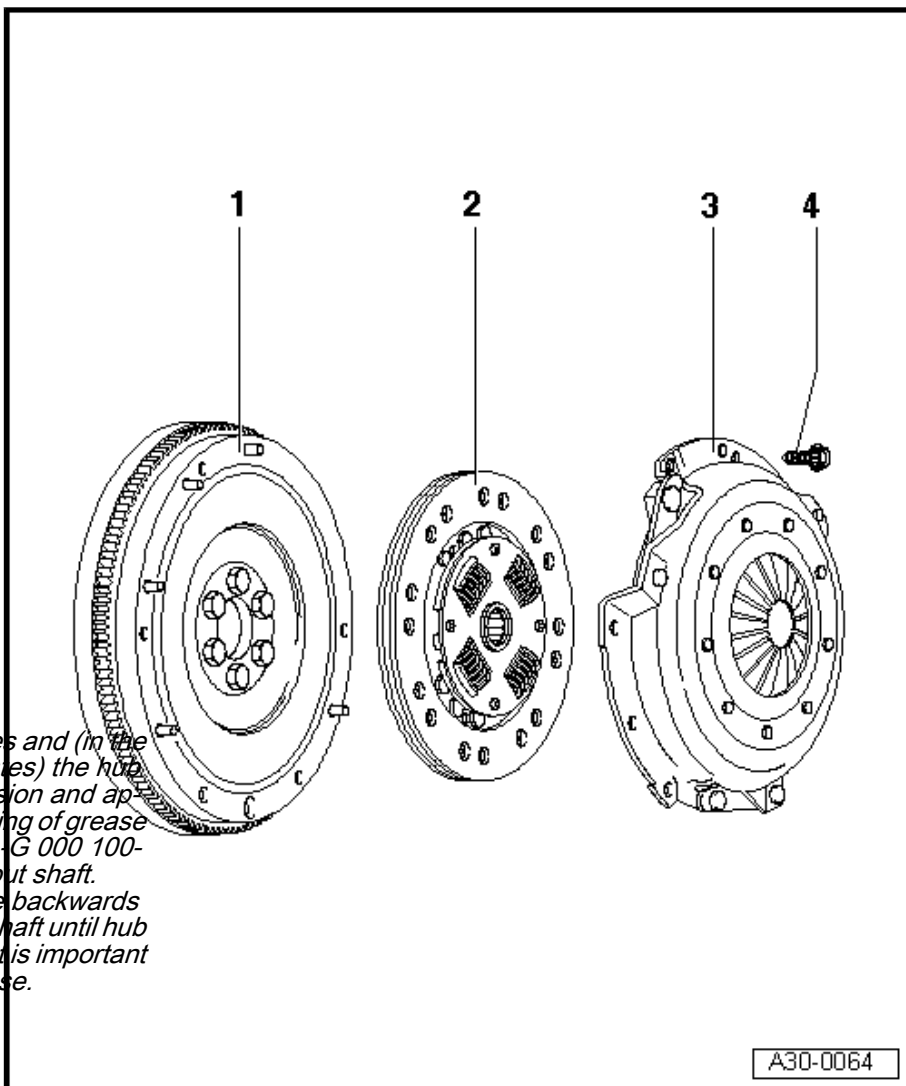
2 - Clutch plate

- ☐ Allocate according to ⇒ Electronic parts catalogue
- ☐ Installation position with one-piece flywheel: spring cage faces towards pressure plate
- ☐ Centralising
⇒ [page 32](#)
- ☐ Lightly grease splines



Note

Clean input shaft splines and (in the case of used clutch plates) the hub splines. Remove corrosion and apply only a very thin coating of grease for clutch plate splines - G 000 100- to the splines of the input shaft. Then move clutch plate backwards and forwards on input shaft until hub moves freely on shaft. It is important to remove excess grease.



3 - Pressure plate

- ☐ Removing and installing
⇒ [page 32](#)
- ☐ Checking ends of diaphragm spring ⇒ [page 32](#)
- ☐ Checking spring connections and rivets ⇒ [page 32](#)



Note

Pressure plates have an anti-corrosion coating and are greased. Only the contact surface may be cleaned, otherwise the service life of the clutch will be considerably reduced.

4 - Bolt

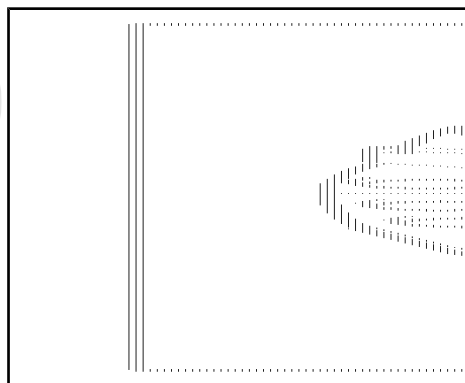
- ☐ 20 Nm
- ☐ Allocate according to ⇒ Electronic parts catalogue
- ☐ Loosen and tighten gradually in diagonal sequence



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

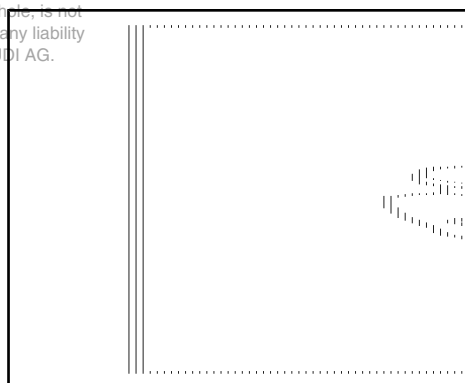
Checking ends of diaphragm spring

- Wear up to half the thickness of the diaphragm spring is permissible.



Checking spring connections and rivets

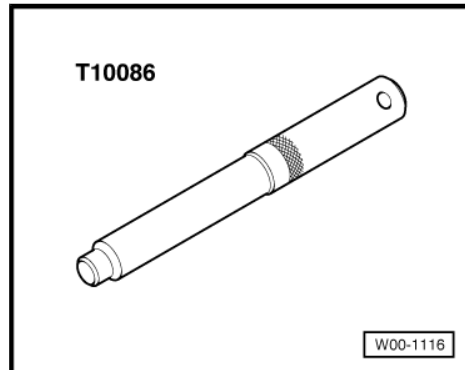
- Check spring connections between pressure plate and cover for cracks and make sure rivet fastenings are seated tightly -arrows-.



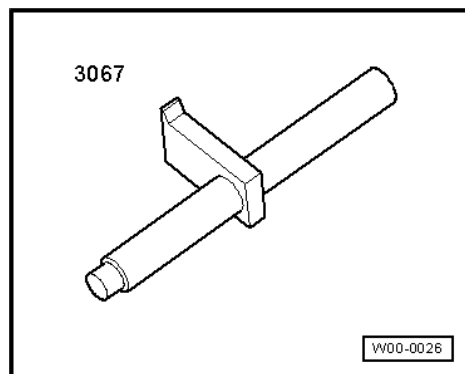
3.3 Removing and installing clutch

Special tools and workshop equipment required

- ◆ Centring mandrel -T10086-



- ◆ Counterhold tool -3067-



- ◆ Grease for clutch plate splines -G 000 100-

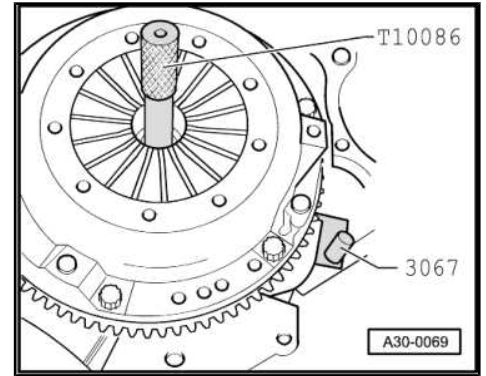
Removing

- Remove gearbox ⇒ [page 49](#) .

- Attach counterhold tool -3067- before loosening or tightening bolts.
- Loosen bolts in small steps and in diagonal sequence.
- Take off pressure plate and clutch plate.

Installing

- Fit pressure plate onto centring pins.
- Screw in all bolts evenly by hand until bolt heads make contact with pressure plate.
- Tighten bolts in small steps and in diagonal sequence to avoid damaging centring holes in pressure plate and dowel pins on flywheel.
- Install gearbox → [page 49](#) .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

34 – Controls, housing

1 Servicing selector mechanism

1.1 Installation position of selector mechanism

Arrow A - Gear selection movement

Arrow B - Gate selection movement

1 - Gearbox selector lever

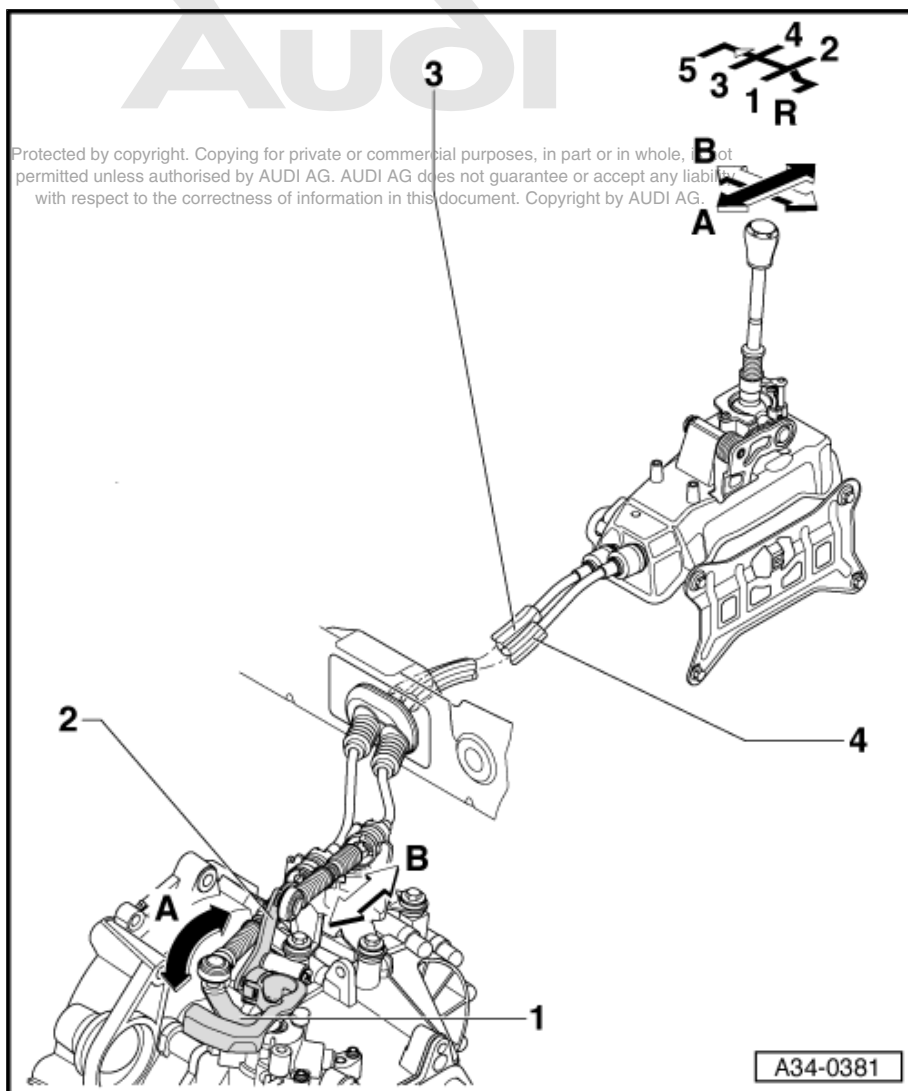
2 - Relay lever

3 - Gear selector cable

- ☐ For gear selection movement -A-

4 - Gate selector cable

- ☐ For gate selection movement -B-



I - Removing and installing gear knob and boot
⇒ [page 35](#)

II - Servicing gear lever and selector housing ⇒ [page 37](#)

III - Removing and installing selector cables - exploded view ⇒ [page 40](#)

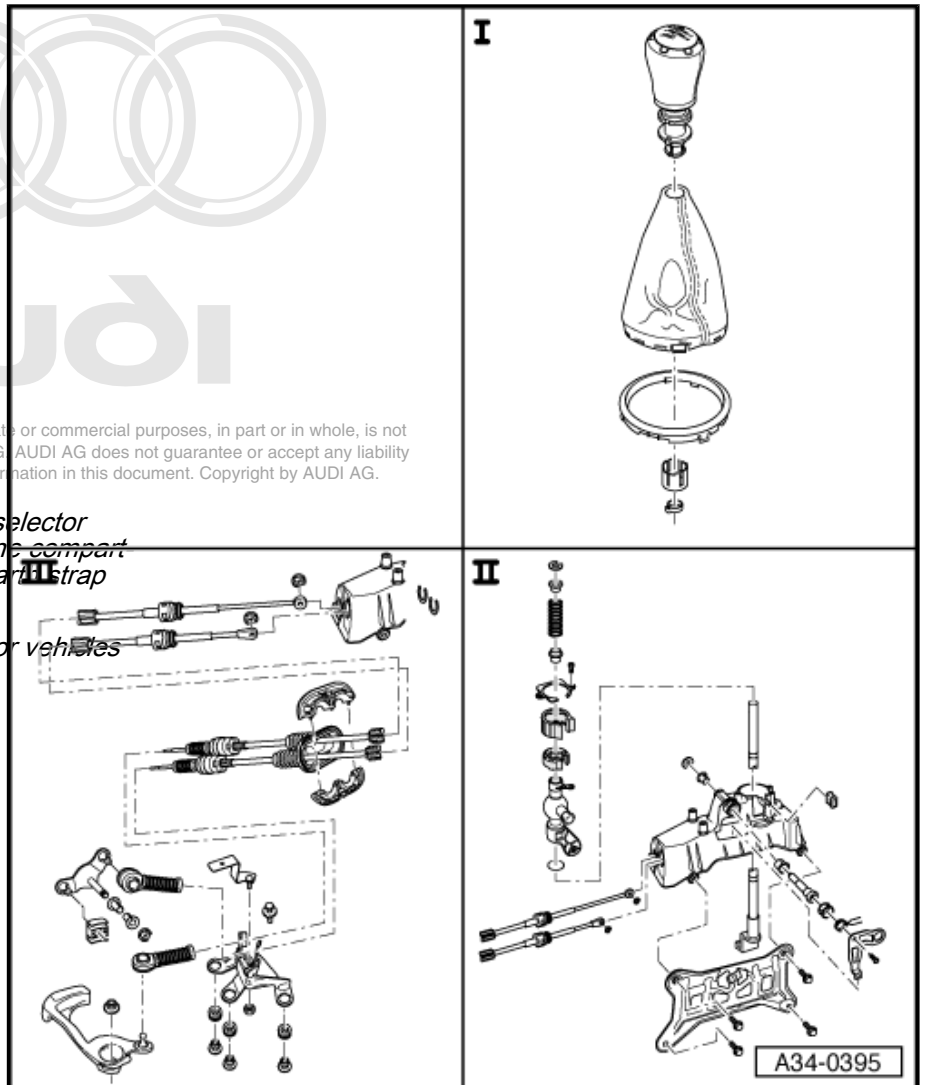
Removing and installing selector mechanism ⇒ [page 43](#)

Adjusting selector mechanism ⇒ [page 46](#)



Note

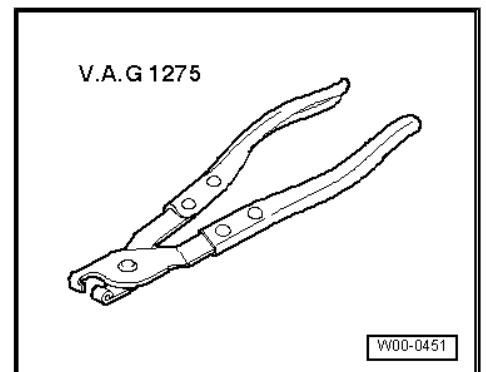
- ◆ Before working on selector mechanism in engine compartment, disconnect earth strap from battery.
- ◆ Note radio coding for vehicles with coded radio.



1.2 Removing and installing gear knob and boot

Special tools and workshop equipment required

- ◆ Hose clip pliers -V.A.G 1275-



1 - Gear knob

- ☐ Remove and install together with boot
- ☐ Removing ⇒ [page 36](#)

2 - Boot

- ☐ Remove and install together with gear knob and boot ring ⇒ [page 36](#)
- ☐ Detaching from gear knob and assembling ⇒ [page 37](#)

3 - Boot ring

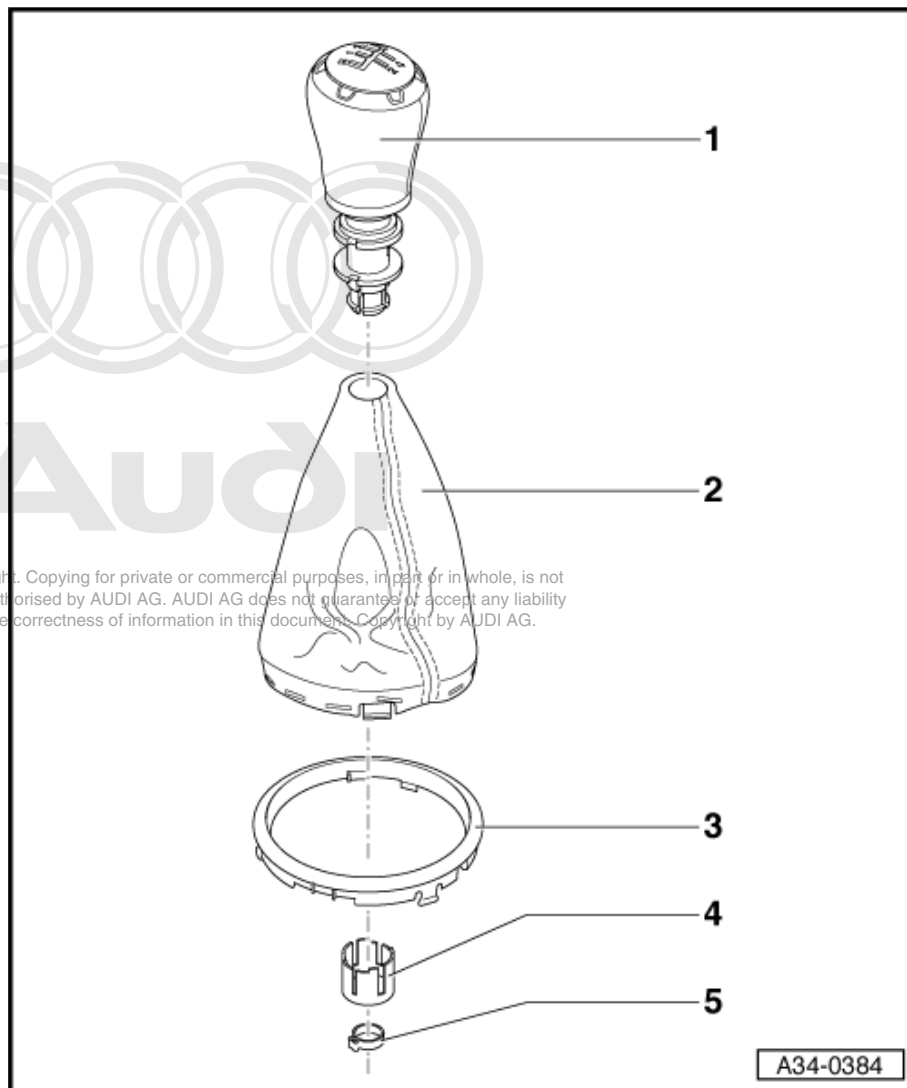
- ☐ Removing and installing ⇒ [page 37](#)

4 - Connecting piece

- ☐ Connects boot with gear knob
- ☐ Removing ⇒ [page 37](#)

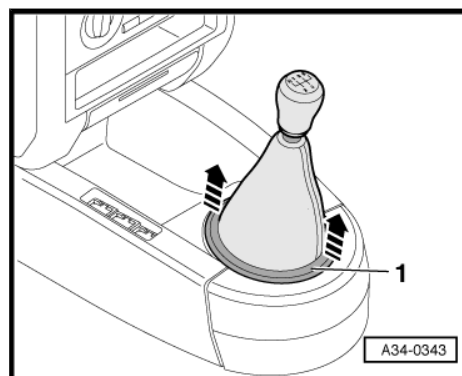
5 - Clip

- ☐ Secures gear knob to gear lever
- ☐ Secure on gear knob ⇒ [Item 1 \(page 36\)](#) using pliers -V.A.G 1275-



Removing gear knob and gear lever boot

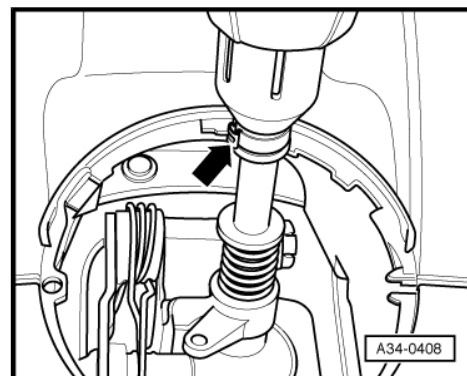
- Lift gear lever boot -1- off centre console in direction of arrow.
- Pull boot up and over gear knob.



- Open clip -arrow- and pull off gear knob together with boot.

Assembly is carried out in the reverse order to removal; note the following:

- Renew the clip -arrow-.

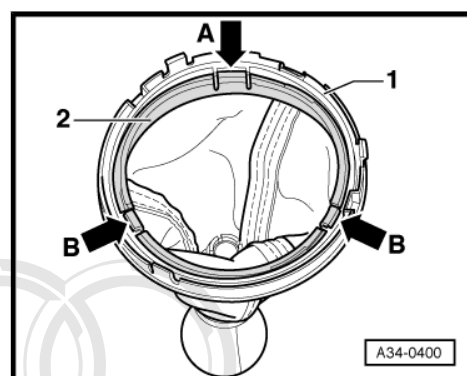


Detaching boot ring from boot and assembling

- Release locking lugs -arrows A and B- and lift off boot ring -1- from inner ring -2-.

Assembly is carried out in the reverse order to removal; note the following:

- Guide large locking lug on inner ring -arrow A- into large recess on boot ring -1-.

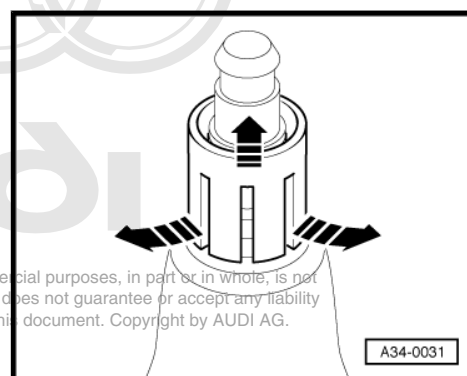


Detaching boot from gear knob and assembling

- Turn boot inside out.
- Using a screwdriver, lever the prongs -arrows- on the connecting piece outwards.
- Pull connecting piece off gear lever.
- Turn gear knob outwards and pull free of boot.

Assembly is carried out in the reverse order to removal; note the following:

- Turn boot inside out.
- Insert gear knob in boot.
- Press connecting piece onto gear knob and boot. The connecting piece must clip onto the gear knob.



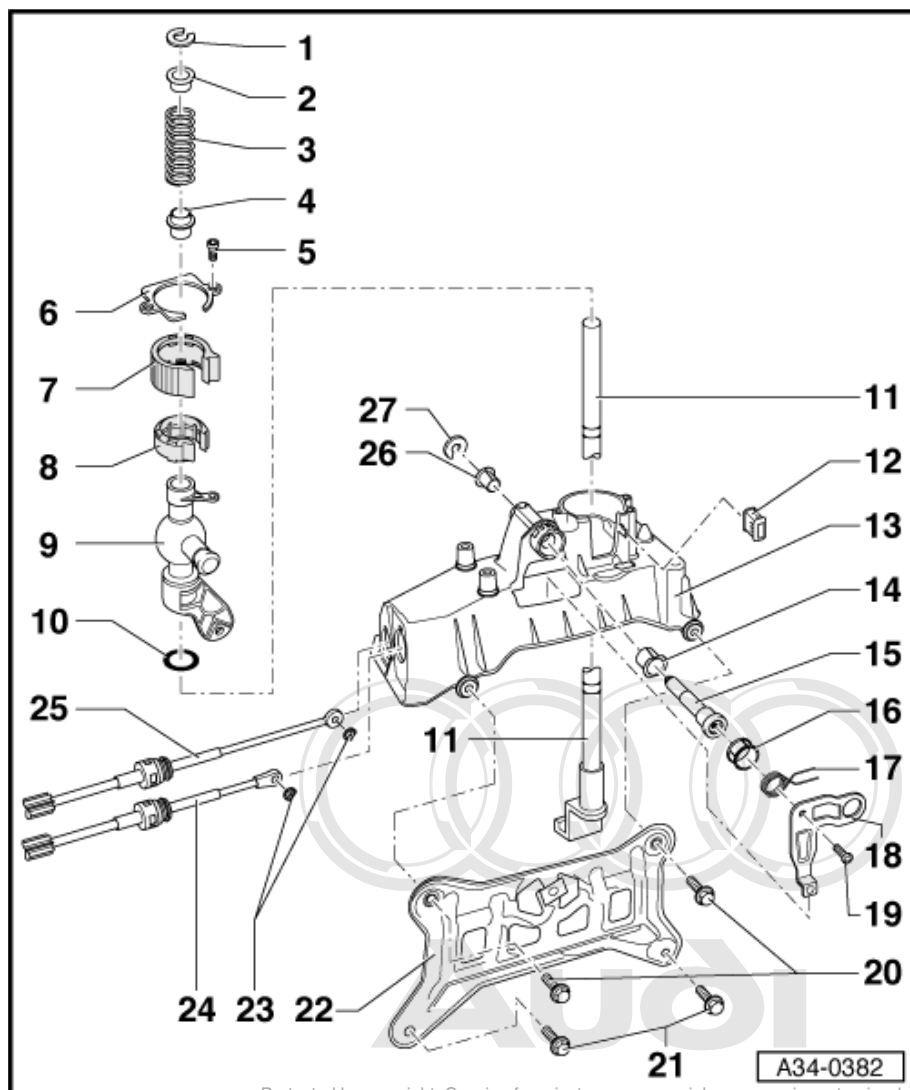
1.3 Servicing gear lever and selector housing



Note

Lubricate all bearings and moving surfaces with polycarbamide grease -G 052 142 A2- .

- 1 - Securing clip
 - ☐ Removing and installing ⇒ [page 39](#)
 - 2 - Bush
 - 3 - Spring
 - 4 - Bush
 - 5 - Bolt
 - ☐ 6 Nm
 - 6 - Cover
 - 7 - Damper
 - 8 - Bearing shell
 - ☐ Insert in damper ⇒ [Item 7 \(page 38\)](#)
 - 9 - Gear lever guide
 - 10 - Damping washer
 - 11 - Gear lever
 - 12 - Damper
 - ☐ Press onto selector housing
 - 13 - Selector housing
 - 14 - Bearing bush
 - ☐ Only fits in one position
 - 15 - Pivot pin
 - 16 - Guide bush
 - ☐ Press onto selector housing
 - 17 - Spring
 - ☐ Installing ⇒ [page 39](#)
 - 18 - Gate selector lever
 - 19 - Bolt
 - ☐ 6 Nm
 - 20 - Bolt
 - ☐ 9 Nm
 - 21 - Bolt
 - ☐ 9 Nm
 - 22 - Retaining plate
 - 23 - Securing clip
 - 24 - Gate selector cable
 - ☐ On gate selector lever
 - ☐ Installation position ⇒ [page 34](#)
 - 25 - Gear selector cable
 - ☐ Press onto gear lever guide
 - ☐ Installation position ⇒ [page 34](#)
 - 26 - Bearing bush
 - ☐ Only fits in one position



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

27 - Securing clip

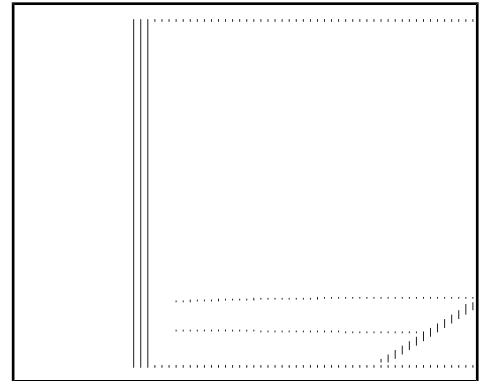
Removing and installing securing clip

- To remove and install securing clip -A-, pull gear lever in direction of -arrow A- and at the same time push down spacer bush onto stop with a screwdriver in direction of -arrow B-.



Note

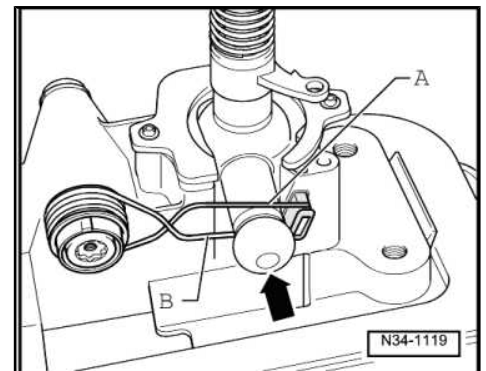
Do not tilt spacer bush when pushing down. Carefully release pressure at groove in gear lever for securing clip.



Installing spring

- Insert spring so that extension -A- lies on top of pin -arrow-.
- Then pull spring extension -B- down until it sits on lower section of pin -arrow-.

Protected by copyright. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without prior written permission from Audi AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



1.4 Removing and installing selector cables - exploded view



Note

Lubricate all bearings and moving surfaces with polycarbamide grease -G 052 142 A2- .

1 - Gate selector cable

- ☐ On gate selector lever
- ☐ Installation position
⇒ [page 34](#)
- ☐ Removing and installing
⇒ [page 43](#)
- ☐ Apply silicone grease -G 000 405 A2- in area of rubber boot/clamping pieces ⇒ [page 45](#)

2 - Gear selector cable

- ☐ Press onto gear lever guide
- ☐ Installation position
⇒ [page 34](#)
- ☐ Removing and installing
⇒ [page 43](#)
- ☐ Apply silicone grease -G 000 405 A2- in area of rubber boot/clamping pieces ⇒ [page 45](#)

3 - Securing clip

4 - Selector housing

5 - Retaining clip

- ☐ Take care not to damage selector cables when removing.

6 - Clamping pieces

- ☐ Always renew
- ☐ Press into rubber boot
⇒ [Item 7 \(page 40\)](#)
- ☐ Apply silicone grease -G 000 405 A2- to openings for cables ⇒ [page 45](#)

7 - Rubber boot

8 - Retaining clip

- ☐ For wiring harness

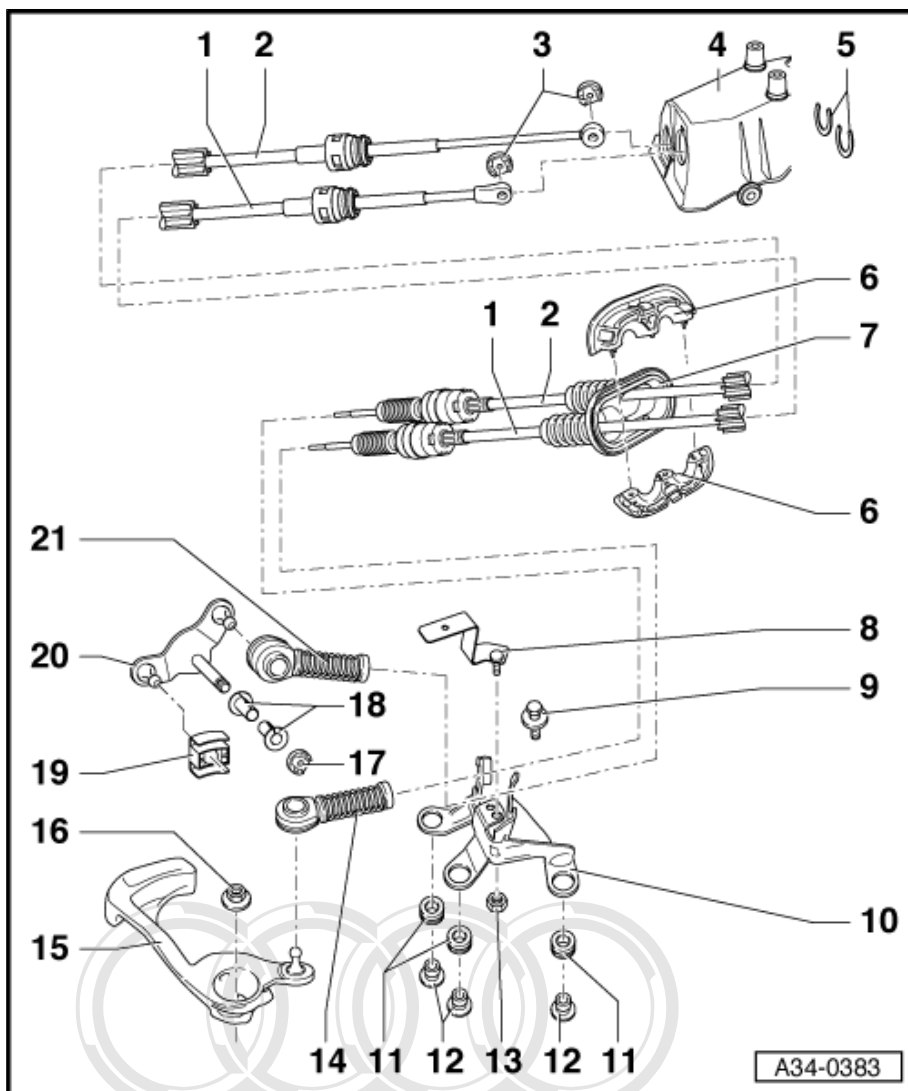
9 - Bolt

- ☐ 20 Nm
- ☐ For support bracket

10 - Support bracket

11 - Grommet

- ☐ For support bracket mounting on gearbox



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

12 - Distance piece

13 - Nut

- ☐ 10 Nm
- ☐ Secures retaining clip ⇒ [Item 8 \(page 40\)](#) to support bracket

14 - Cable end-piece

- ☐ Secures gear selector cable to gearbox selector lever
- ☐ Removing ⇒ [page 42](#)
- ☐ Installing ⇒ [page 42](#)
- ☐ Must be renewed if removed

15 - Gearbox selector lever

- ☐ With damper weight
- ☐ Install so that gap in splines aligns with selector shaft ⇒ [page 42](#)
- ☐ After installing, adjust selector mechanism ⇒ [page 46](#)
- ☐ Installation position ⇒ [page 41](#)

16 - Nut

- ☐ 20 Nm
- ☐ Self-locking
- ☐ Always renew

17 - Securing clip

18 - Bearing bush

19 - Slide block

- ☐ Apply polycarbamide grease -G 052 142 A2-

20 - Relay lever

- ☐ Installation position ⇒ [page 41](#)

21 - Cable end-piece

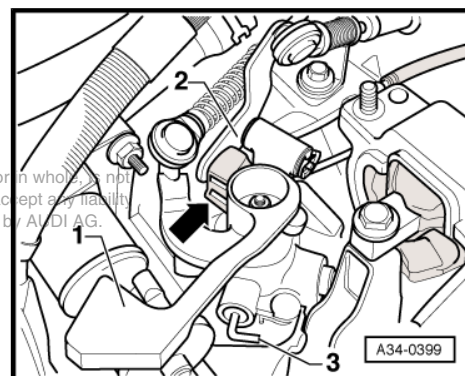
- ☐ Secures gate selector cable to relay lever
- ☐ Removing ⇒ [page 42](#)
- ☐ Installing ⇒ [page 42](#)
- ☐ Must be renewed if removed

Installation position of gearbox selector lever, relay lever and locking pin

1 - Gearbox selector lever with damper weight

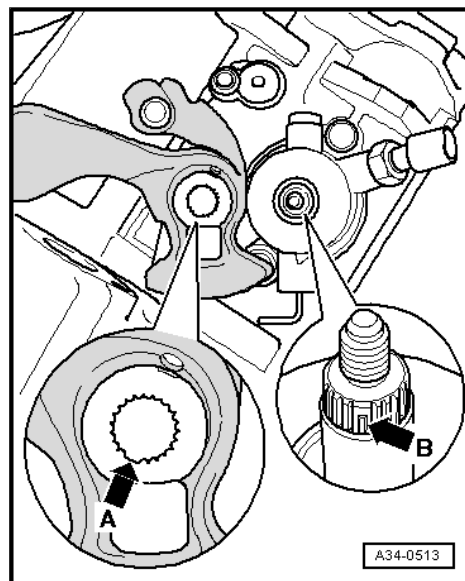
2 - Relay lever - locates in guide rail of gearbox selector lever via slide block -arrow-

3 - Locking pin - for adjusting selector mechanism



Installing gearbox selector lever

- When installing gearbox selector lever, make sure that the gap in the splines -arrow A- aligns with the wider spline -arrow B- on the selector shaft.



Detach cable end-piece from gearbox selector lever and relay lever



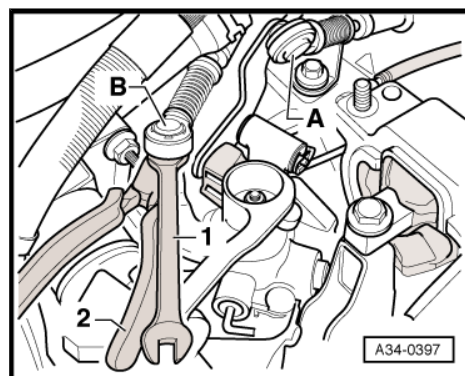
Note

Renew detached cable end-pieces.

- Lever off cable-end piece for gate selector cable -A- using open-end spanner -1- and gear selector cable -B- using open-end spanner -1- and pliers -2- from gearbox.

-1- = Open-end spanner A/F 13, commercially available

-2- = pliers, commercially available



Fit new cable end-piece to gearbox selector lever and relay lever



Note

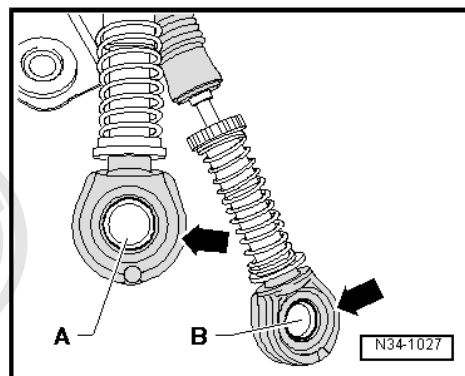
Renew detached cable end-pieces.

- Apply a small amount of polycarbamide grease -G 052 142 A2- in ball sockets of cable end-piece -A- and end-piece for gate selector cable -B-.



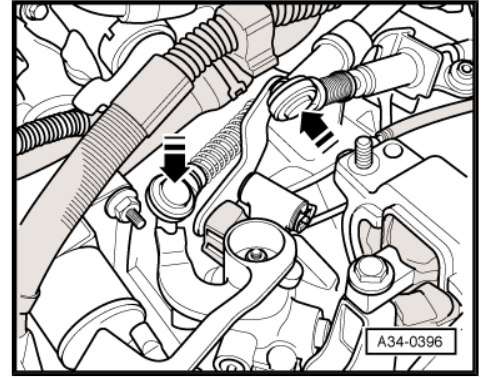
Note

The seals -arrows- outside the ball socket must be grease-free.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Press gear selector cable onto gearbox selector lever and gate selector cable onto relay lever -arrows-.



1.5 Removing and installing selector mechanism

Special tools and workshop equipment required

- ◆ Polycarbamide grease -G 052 142 A2-
- ◆ Silicone grease -G 000 405 A2-

Removing

- First check whether a coded radio is fitted. If this is the case obtain the anti-theft coding.
- With the ignition switched off, disconnect battery earth strap.

Release cable end-pieces for gate selector cable and gear selector cable as follows:

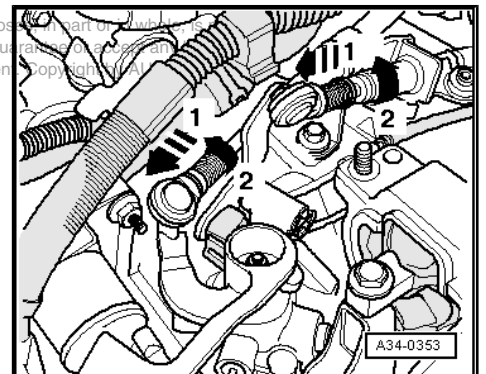
- Pull locking mechanism on gate selector cable and gear selector cable forwards in direction of -arrow 1- onto stop.
- Turn locking sleeve in direction of -arrow 2- up to limit stop and clip locking sleeve in place.



Note

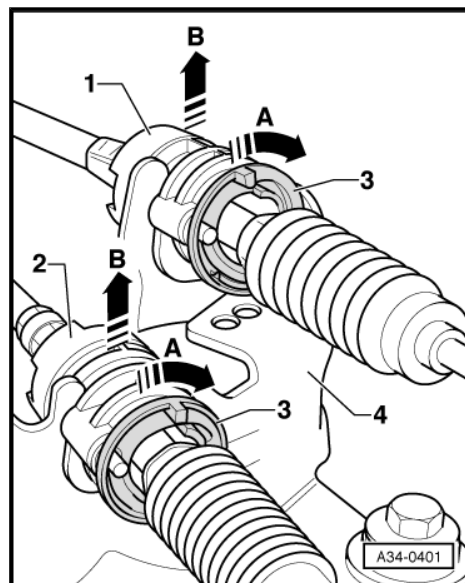
It should now be possible to move the cable in the cable end-piece.

- Pull gear selector cable and gate selector cable out of cable end-pieces.

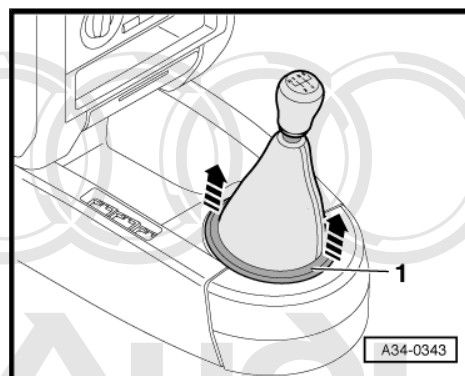


Remove gear selector cable -1- and gate selector cable -2- from support bracket -4- as follows:

- Turn release ring -3- in direction of -arrow A- as far as stop and pull cable out of support bracket -4- in direction of -arrow B-.
- Move both cables clear towards rear.

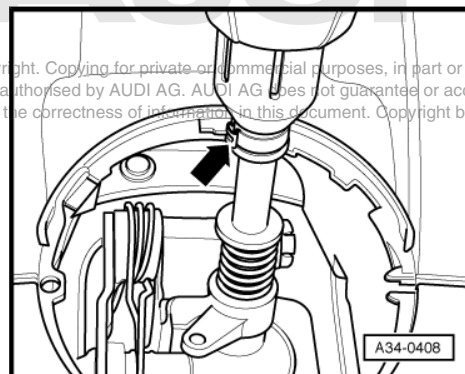


- Lift gear lever boot -1- off centre console in direction of -arrow-.
- Pull boot up and over gear knob.

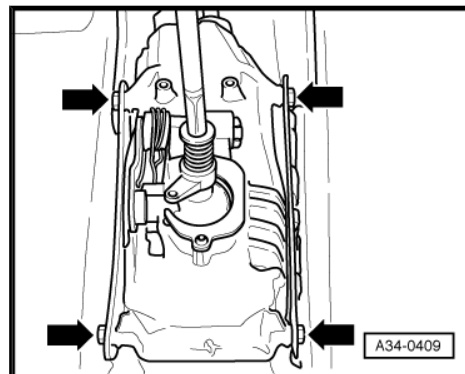


- Open clip -arrow- and pull off gear knob together with boot.
- Remove centre console (rear) ⇒ Rep. Gr. 68 .

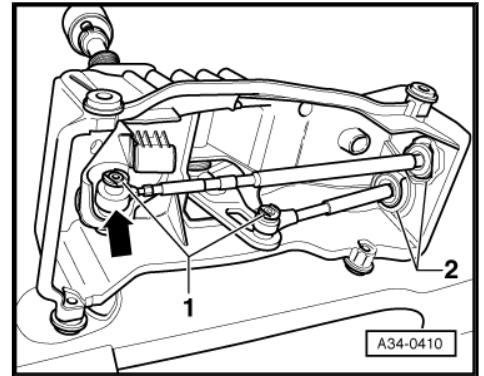
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



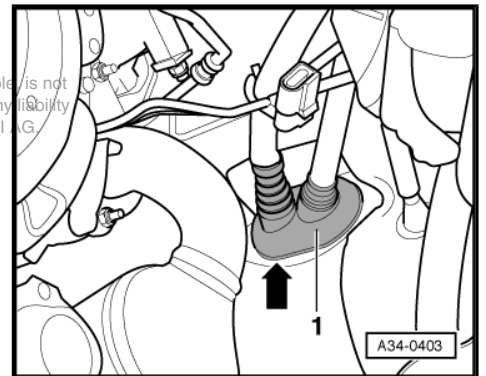
- Remove securing bolts -arrows- for selector housing.



- Pull off both securing clips -1- and securing clips -2-.
- Use screwdriver to pry off selector cable -arrow- and pull off selector housing from cables.
- Raise vehicle.



- Pry out rubber boot -1- from below using a screwdriver -arrow-.
- Pull out both cables downwards.



Installing

Assembly is carried out in the reverse order to removal; note the following:



Note

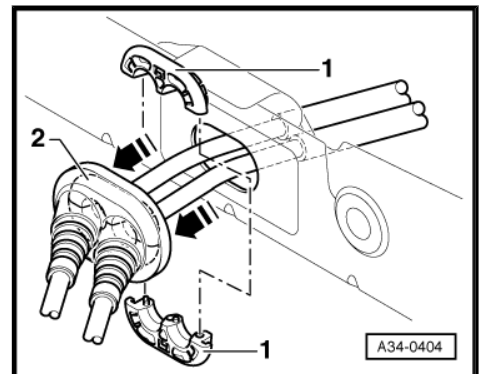
A second mechanic is required in passenger compartment to assist insertion of cables.

- Renew both clamping pieces -1-; they will be damaged upon removal.
- Fit clamping pieces -1- together and press into rubber boot -2-.



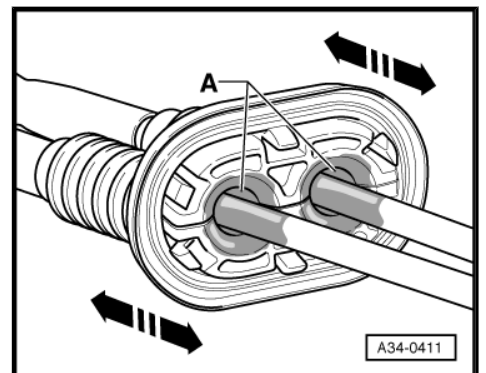
Note

Make sure that sufficient silicon grease -G 000 405 A2- is applied in area -A- to clamping pieces and cables.



- Push rubber boot several times back and forth in direction of -arrow-, to make sure silicon grease -G 000 405 A2- is applied to cables and clamping pieces.

-A- Silicone grease -G 000 405 A2-



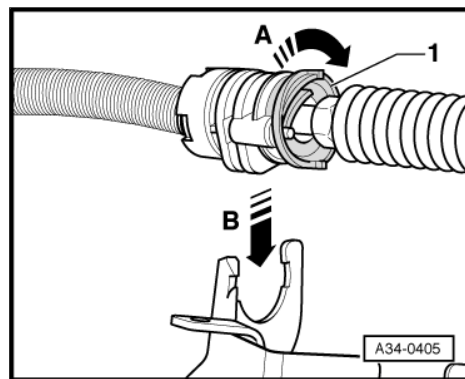
- Turn release ring -1- in direction of -arrow A- as far as stop and guide cable into support bracket in direction of arrow -B-.
- Let go of release ring -1- again and make sure that both cables are locked in support bracket.


Note

In addition, the gear selector cable must be clipped into cable bracket (located at support bracket).

- Install selector housing and tighten to 9 Nm.
- Install centre console ⇒ Rep. Gr. 68 .

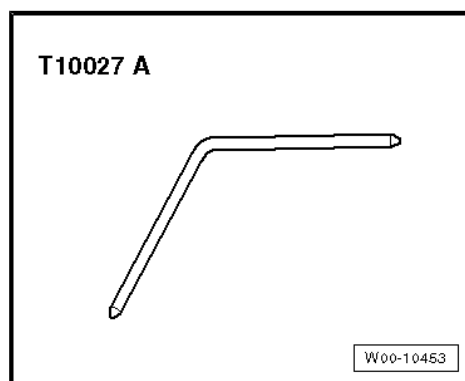
Adjusting selector mechanism ⇒ [page 46](#) .



1.6 Adjusting selector mechanism

Special tools and workshop equipment required

- ◆ Locking pin -T10027 A-


Note

- ◆ *The following are prerequisites for correct gear lever alignment:*
- ◆ *Gear selector linkage must be in proper condition and undamaged.*
- ◆ *Selector mechanism must move freely.*
- ◆ *The gearbox, clutch and clutch mechanism must also be in proper condition.*
- Gearbox in neutral.

Release cable end-pieces for gate selector cable and gear selector cable as follows:

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Pull locking mechanism on gate selector cable and gear selector cable forwards in direction of -arrow 1- onto stop.
- Turn locking sleeve in direction of -arrow 2- up to limit stop and clip locking sleeve in place.

 Note

It should now be possible to move the cable in the cable end-piece.

Lock the selector shaft as follows:

- Push gearbox selector lever down into 1st/2nd gear gate in direction of -arrow 1-.
- While pressing selector shaft down, press locking pin -A- slightly towards selector shaft, then turn locking pin -A- 90° in direction of -arrow 2- until it engages noticeably.

The selector shaft is then locked and can no longer be moved.

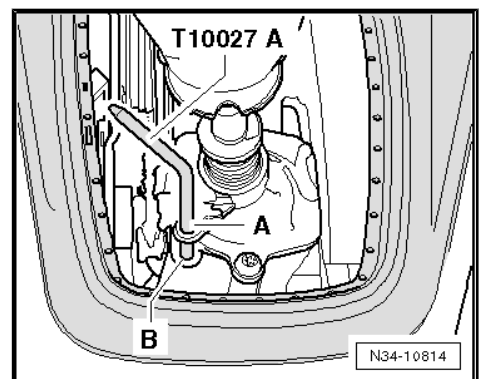
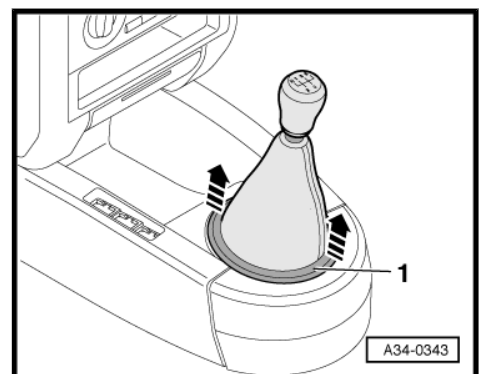
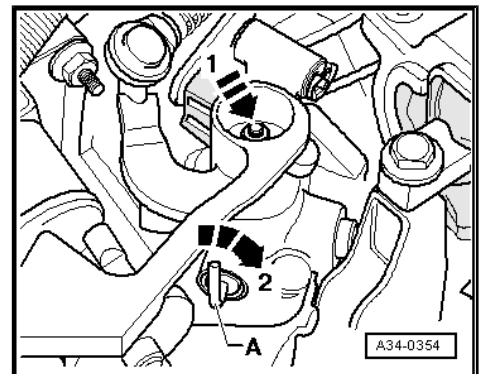
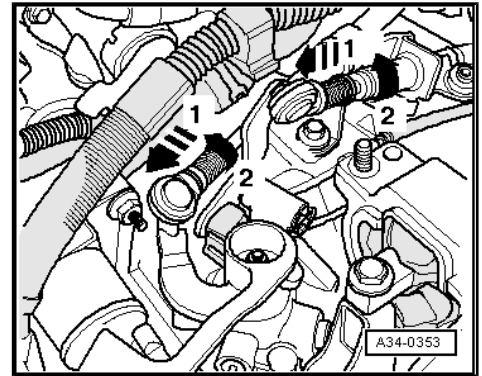
- Lift gear lever boot -1- off centre console in direction of arrow.
- Pull boot up and over gear knob.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

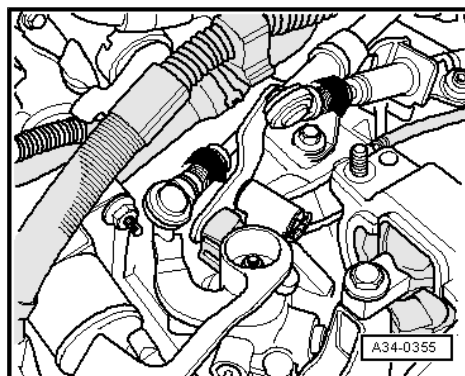
Now lock the gear lever as follows:

- With gearbox in neutral, guide gear lever to the left into 1st/ 2nd gear gate.
- Then guide locking pin -T10027 A- through hole -A- and into hole -B-.
- Ensure that gate selector cable and gear selector cable are located free of tension in selector cable end-pieces.



- Turn locking mechanism on gear selector cable and gate selector cable in direction of -arrow- as far as stop and release.

The spring presses the locking mechanism into normal position.

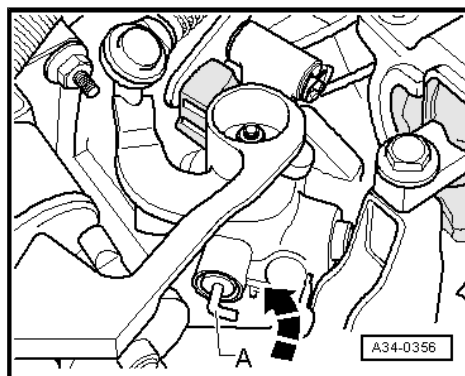


- Now turn locking pin -A- back to original position -direction of arrow-.

Locking pin -A- is slightly pressed out of selector mechanism cover during this process.

Note

- ◆ Locking pin -A- should be pressed out of selector mechanism cover as far as stop and point vertically upwards.
- ◆ Selector shaft should move up and down (gate selector movement).



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Pull pin -T10027 A- out of holes -A- and -B-.

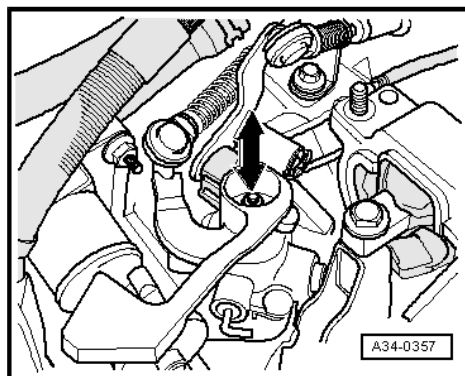
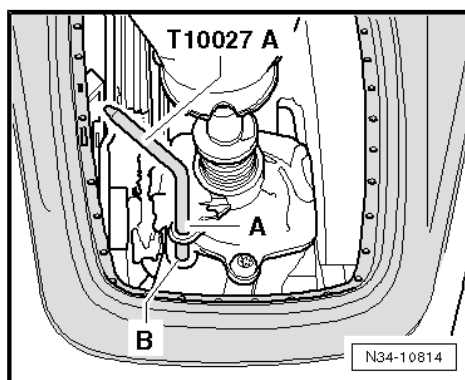
- Install gear lever boot.

Function

- With the gearbox in neutral, the gear lever should rest in the gate for 3rd and 4th gear.
- Depress clutch.
- Select all gears several times. Pay particular attention to the operation of the reverse gear locking mechanism.

Should a gear fail to engage smoothly after repeated selection, check the play (lift movement) of the selector shaft as follows:

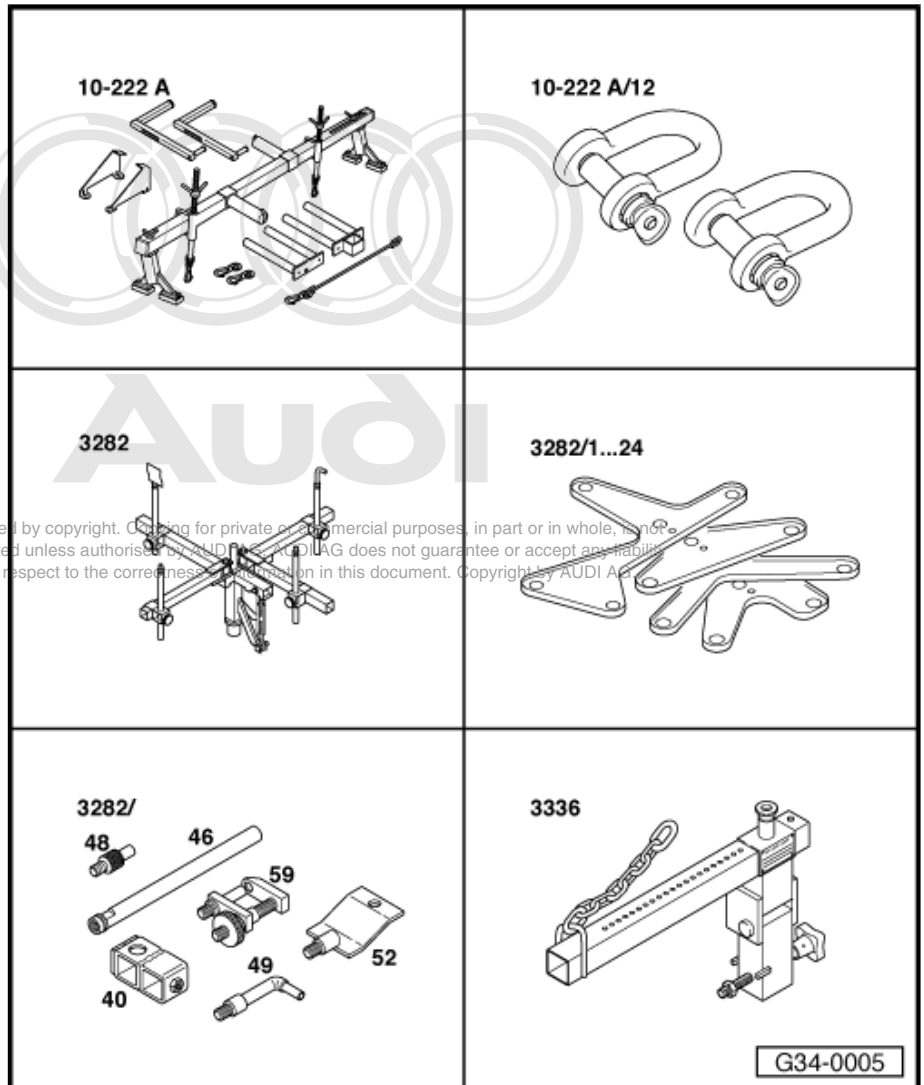
- Engage 1st gear.
- Push gear lever as far as it will go to the left and release.
- At the same time observe selector shaft on gearbox (2nd mechanic).
- The selector shaft should move up and down approx. 1 mm (in direction of -arrow-) when the gear lever is moved.
- If this is not the case, adjust selector mechanism again
⇒ [page 46](#) .



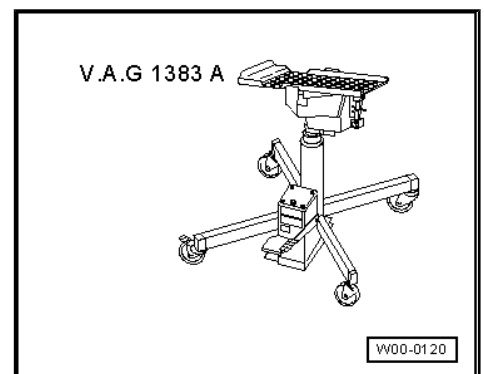
2 Removing and installing gearbox

Special tools and workshop equipment required

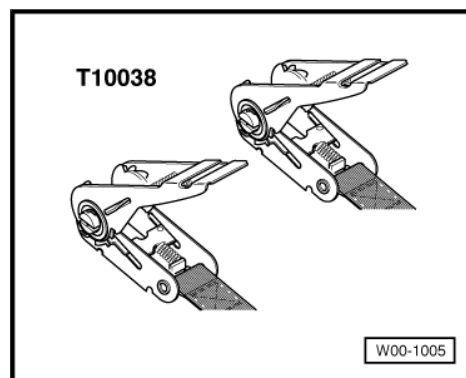
- ◆ Support bracket -10 - 222 A- with adapters -10 - 222 A /13-
- ◆ Shackle -10 - 222 A /12-
- ◆ Gearbox support -3282-
- ◆ Adjustment plate -3282/31-
- ◆ Gearbox lifting tackle -3336-



- ◆ Engine and gearbox jack -V.A.G 1383 A-



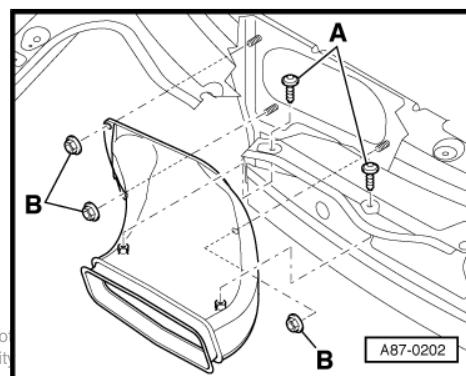
◆ Tensioning strap -T10038-



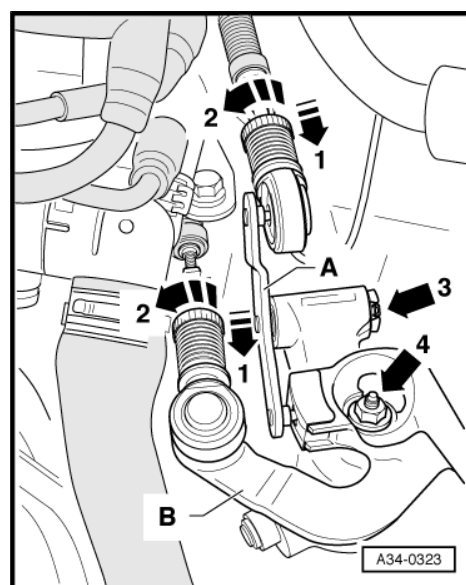
◆ Grease for clutch plate splines -G 000 100-

Removing

- Remove bonnet ⇒ Rep. Gr. 55 .
- First check whether a coded radio is fitted. If this is the case obtain the anti-theft coding.
- With the ignition switched off, disconnect battery earth strap.
- Pull off rubber seal at plenum chamber.
- Detach wiper arm and scuttle panel trim.
- Remove both bolts -A- and three hexagon nuts -B-.
- Detach the fresh air intake duct towards the front.



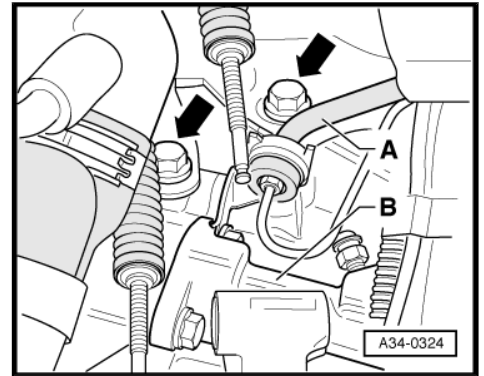
- Pull locking mechanism on gear selector cable and gate selector cable forwards -arrow 1- onto stop and then turn to left -arrow 2- to lock.
- Pull securing clip -arrow 3- off relay lever -A- and remove relay lever.
- Remove gearbox selector lever -B- by removing nut -arrow 4-.



- Pull pipe/hose assembly -A- out of bracket on gearbox.
- Remove clutch slave cylinder -B-, place to one side and secure with wire. Do not disconnect pipes.



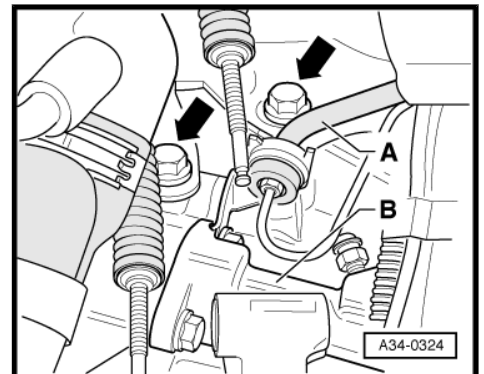
Do not depress clutch pedal.



- Unscrew two bolts securing cable support bracket from gearbox -arrows-.



The third bolt for the cable support bracket is removed from the gearbox from below, with the vehicle raised ⇒ [page 52](#).



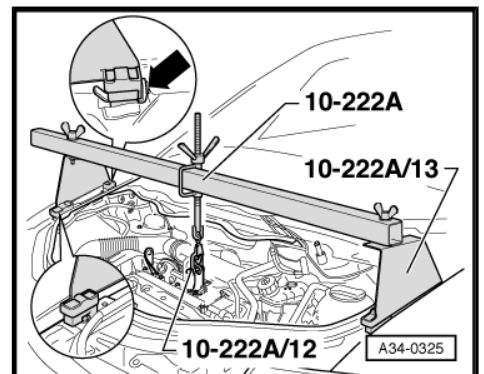
- Detach earth strap at upper engine/gearbox connecting bolt.
- Then remove upper securing bolt from starter.

- Assemble support bracket -10 - 222 A- together with adapters -10 - 222 A /13- and shackle -10 - 222 A /12-

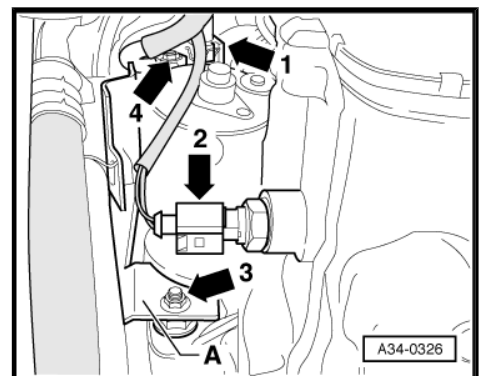
Protected by copyright. Copying or private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



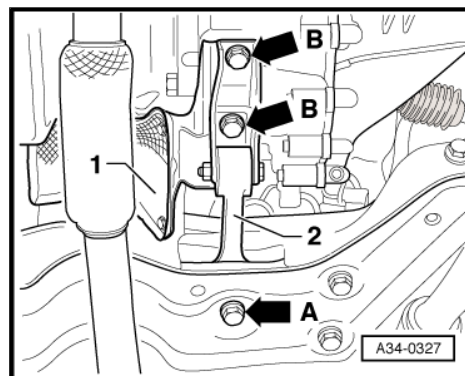
Engage the adapters -10 - 222 A /13- at the rear in the mounting hooks for the bonnet -arrow-.



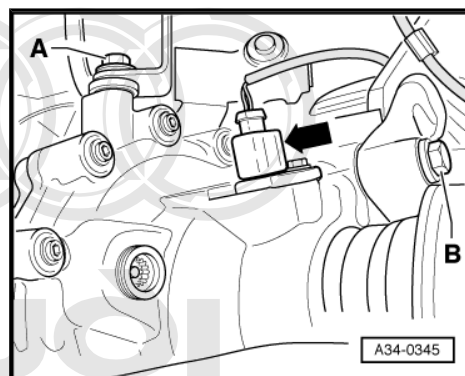
- Partly take up weight of engine/gearbox assembly via the spindle.
- Loosen bolts for left front wheel.
- Raise vehicle.
- Remove left wheel.
- Remove noise insulation.
- Remove connector -arrow 1- from starter.
- Unplug connector from reversing light switch -F4- -arrow 2-.
- Remove bracket -A- on starter -arrow 3-.
- Unscrew wire -arrow 4- from solenoid switch terminal 30.
- Remove starter ⇒ Rep. Gr. 27 .



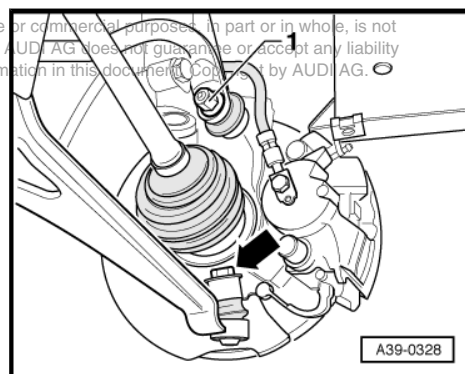
- Remove heat shield -1- from pendulum support -2-.
- Remove pendulum support -arrows A and B-.
- Unbolt drive shafts from gearbox flange shafts.
- Lift drive shaft (right-side) up and secure.



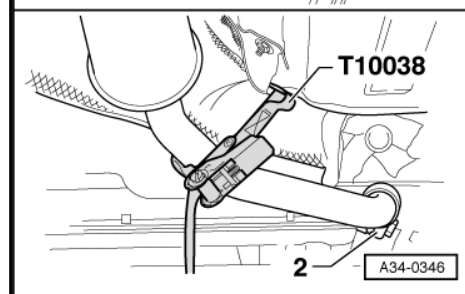
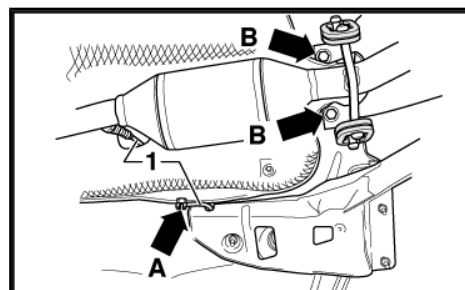
- If fitted, unplug connector from speedometer sender -G22- -arrow-.
- Remove third bolt -A- for cable support bracket from gearbox .
- Tie back gear selector cable and gate selector cable.
- Remove engine/gearbox securing bolt -B- above flange shaft (right-side).



- Release coupling rod (left-side) -1- from anti-roll bar.
- Detach suspension link (left-side) from wheel bearing housing -arrow- ⇒ Rep. Gr. 40 .
- Remove wheel housing liner from wheel housing (left-side).
- Swivel wheel bearing housing outwards.
- Guide drive shaft (left-side) out between subframe and gearbox.
- Guide drive shaft into the wheel housing and secure to suspension strut e.g. with wire or similar.



- Unclip wiring -1- for lambda probe from heat shield -arrow A-.
- Remove bracket for exhaust system from underbody -arrows B-.
- Separate exhaust system at double clamp -2-.
- Secure exhaust system to heat shield using tensioning strap -T10038- .



- Remove hexagon bolts -arrows- at left mounting from gearbox mounting.
- Tilt engine/gearbox assembly; for this purpose, lower via spindle of support bracket -10 - 222 A- .

 Note

When lowering the engine/gearbox assembly, make sure that the gearbox does not contact the subframe in the vicinity of the differential.

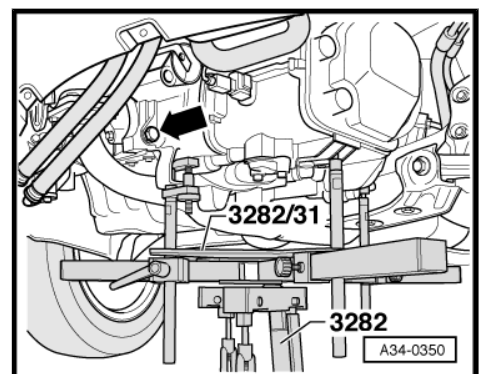
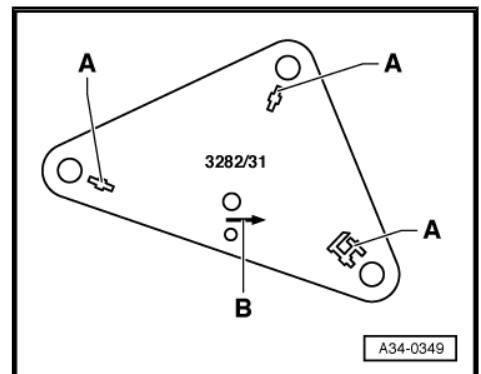
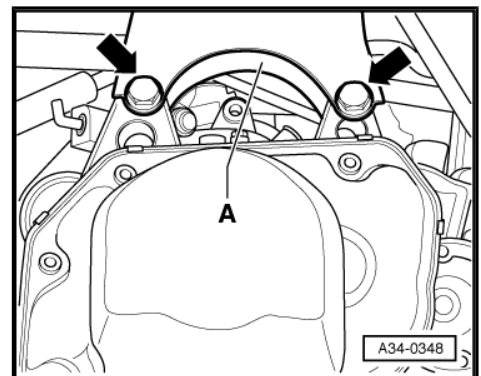
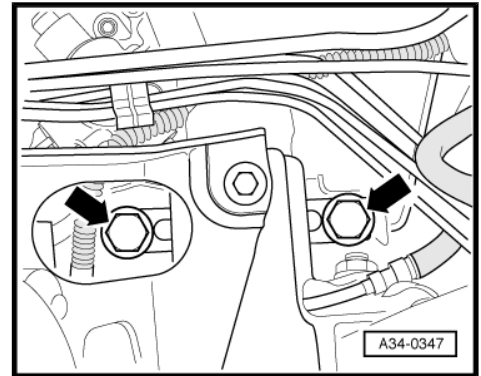
- Bolts -arrows- securing gearbox bracket -A- must be accessible.

- Detach gearbox bracket -A- -arrows-.
- Set up gearbox jack with gearbox support -3282- , adjustment plate -3282/31- for gearbox "02T" and supporting elements as follows:
- Place adjustment plate -3282/31- on gearbox support -3282- . (Adjustment plate can only be fitted in one position.)
- Align arms of gearbox support according to holes in adjustment plate.

- Bolt on support elements -A-, as illustrated on adjustment plate.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

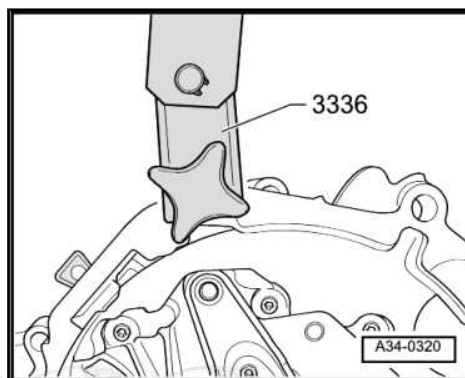
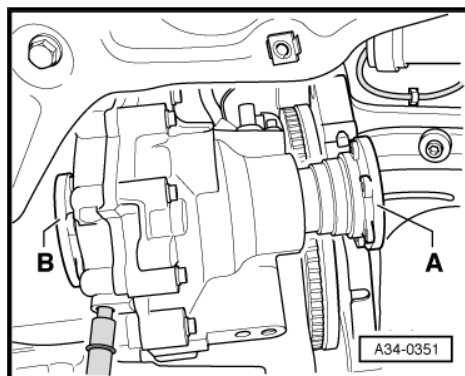
- Place engine and gearbox jack under vehicle; arrow symbol -B- (➔ [page 53](#)) on adjustment plate points to front of vehicle.
- Align adjustment plate parallel to gearbox and lock safety support on gearbox.
- Remove bottom engine/gearbox connecting bolts.
- Remove engine/gearbox connecting bolt -arrow-.
- Push the gearbox off the dowel sleeves and swing carefully towards the subframe.
- Carefully push engine towards front (2nd mechanic required).
- Turn gearbox downwards in vicinity of differential.



- Then lower gearbox carefully, guiding right-hand flange shaft -A- past flywheel as illustrated and left-hand flange shaft -B- past subframe.
- When lowering the gearbox, change position of gearbox using the spindles on gearbox support -3282- .

Transporting gearbox

- Bolt gearbox lifting tackle -3336- to clutch housing.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

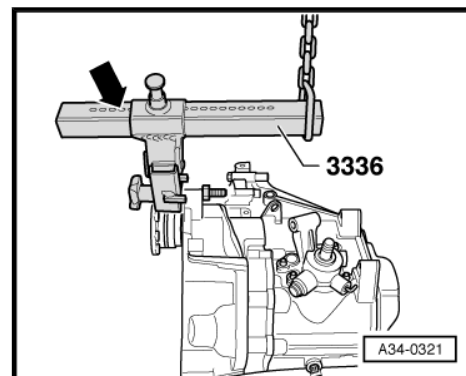
- Set support arm on sliding bracket by means of locking pin -arrow-.

Number of holes visible = 5

- Take up gearbox with workshop hoist and gearbox lifting tackle -3336- .
- Set down gearbox as required (for example in transport container).

Installing

Installation of gearbox is carried out in reverse order of removal. When installing gearbox, ensure that engine/gearbox mountings are free of stress ⇒ Rep. Gr. 10 .



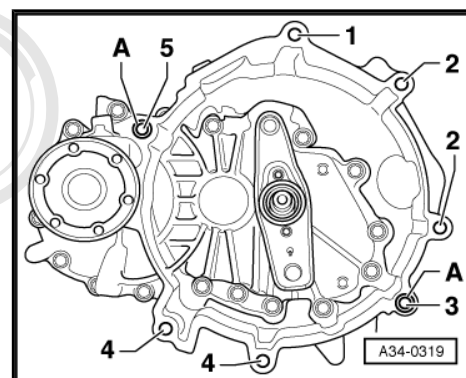
Note

- ◆ Clean splines of input shaft and apply a thin coat of grease for clutch plate splines -G 000 100- .
- ◆ When renewing gearbox, ensure that intermediate plate is correctly positioned.
- ◆ Check that dowel sleeves for centralising engine/gearbox are in the cylinder block, install if necessary.
- ◆ Check gearbox oil ⇒ [page 57](#) .
- ◆ Installing starter/wiring ⇒ Rep. Gr. 27 .
- ◆ Secure coupling rod to anti-roll bar and suspension link to wheel bearing housing ⇒ Rep. Gr. 40 .
- ◆ Adjusting selector mechanism ⇒ [page 46](#) .
- ◆ When the battery is reconnected, please remember to check and activate the vehicle equipment (radio, clock, convenience electrical systems etc.).

Tightening torques

Gearbox to engine

Item	Bolt	Qty.	Nm
1 1)	M 12 x 65	1	80
2 2)	M 12 x 140	2	80
3	M 12 x 80	1	80
4	M 10 x 50	2	45
5	M 12 x 65	1	80
A	Dowel sleeves for centralising		
1) Bolt with stud M8 2) Also starter to gearbox			



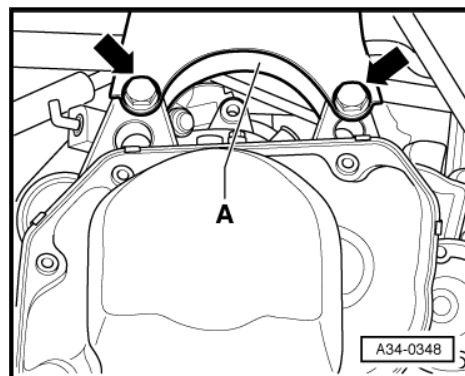
Copyright. Copying for private or commercial purposes in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Gearbox bracket -A- to gearbox

- Renew bolts.

Bolts -arrows-

50 Nm and then
turn 90° further

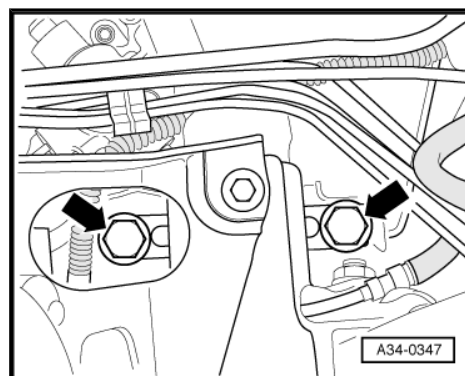


Gearbox to body

- Renew bolts.

Bolts -arrows-

40 Nm and then
turn 90° further



Rear gearbox mounting

- Renew bolts.

Bolt -A-

40 Nm and then
turn 90° further

Bolts -B-

50 Nm

Drive shaft to flange shaft

⇒ Rep. Gr. 40

Selector cable support bracket to gearbox

20 Nm

Gearbox selector lever to gearbox

20 Nm ¹⁾

Clutch slave cylinder to gearbox

23 Nm

Double clamp to exhaust pipe

40 Nm

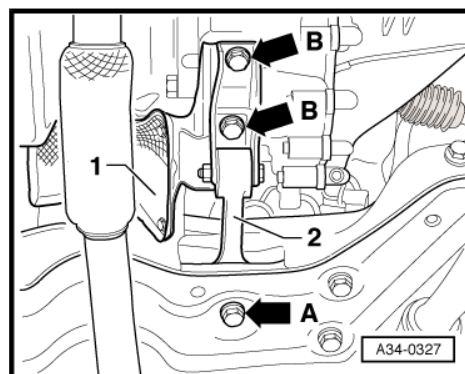
Protective plate to pendulum support

23 Nm

Wheel bolts to wheel hub

⇒ Rep. Gr. 44

- ¹⁾ Renew nut

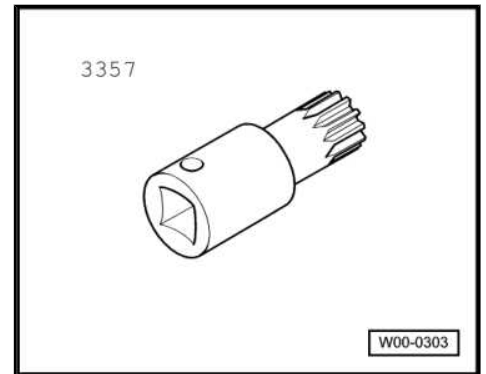


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

3 Checking gearbox oil

Special tools and workshop equipment required

- ◆ Socket (27 mm) -3257-



For gear oil specification, refer to ⇒ Electronic parts catalogue .

- Remove gear oil inspection plug -arrow-.

Oil level is correct when gearbox oil is up to bottom lip of filler hole.

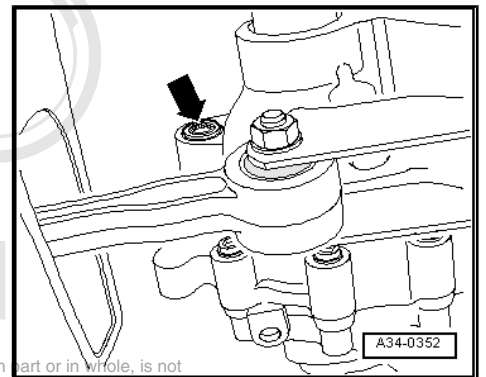
- Screw in plug -arrow-.

Tightening torque:

Oil filler plug 25 Nm

Note the following when filling with new oil:

- Remove plug -arrow-.
- Fill up gear oil to bottom lip of filler hole.
- Screw in plug -arrow-.
- Start engine, engage a gear and allow gearbox to turn for approx. 2 minutes.
- Switch off engine and remove plug -arrow-.
- Top up gear oil again to bottom lip of filler hole.
- Screw in plug -arrow-.

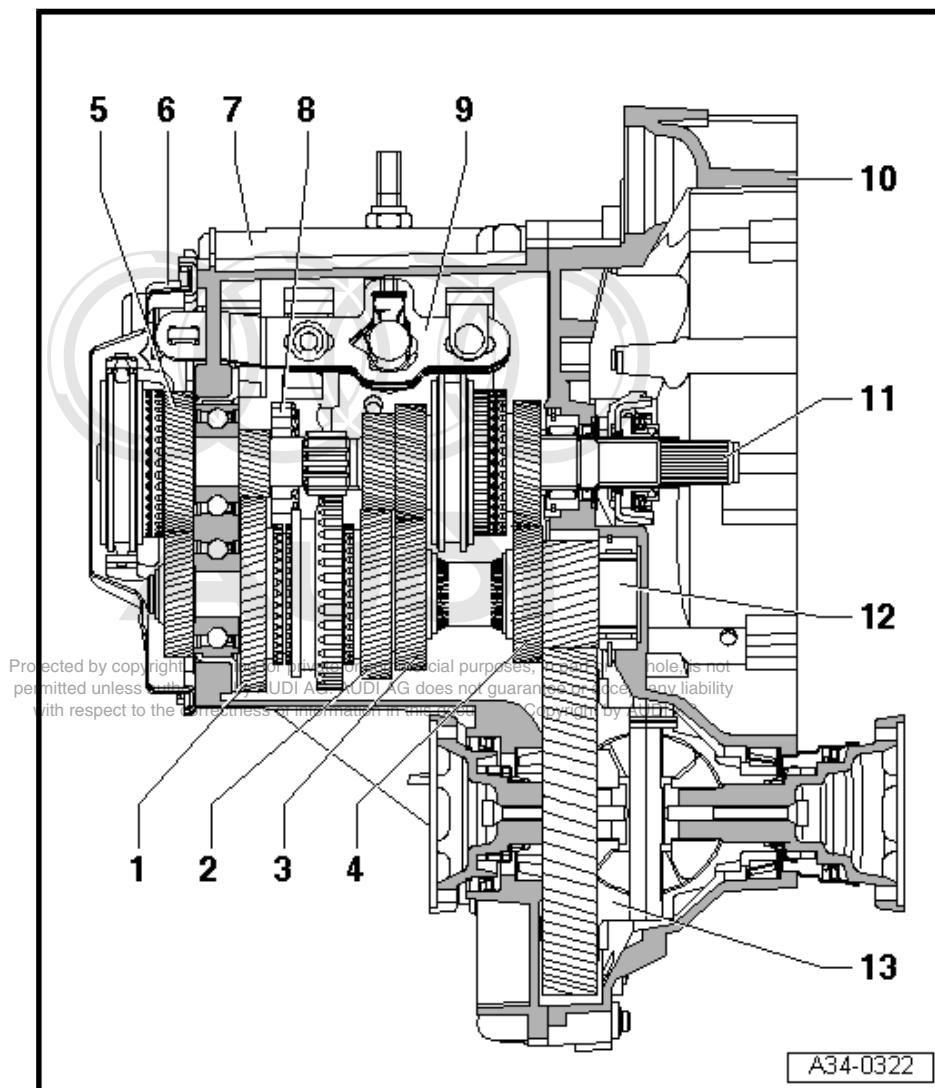


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

4 Dismantling and assembling gearbox

4.1 General layout of gearbox

- 1 - 1st gear
- 2 - 2nd gear
- 3 - 3rd gear
- 4 - 4th gear
- 5 - 5th gear
- 6 - Gearbox housing cover
- 7 - Gearbox housing
- 8 - Reverse gear wheel
- 9 - Selector mechanism
□ (Selector forks)
- 10 - Clutch housing
- 11 - Input shaft
- 12 - Output shaft
- 13 - Differential

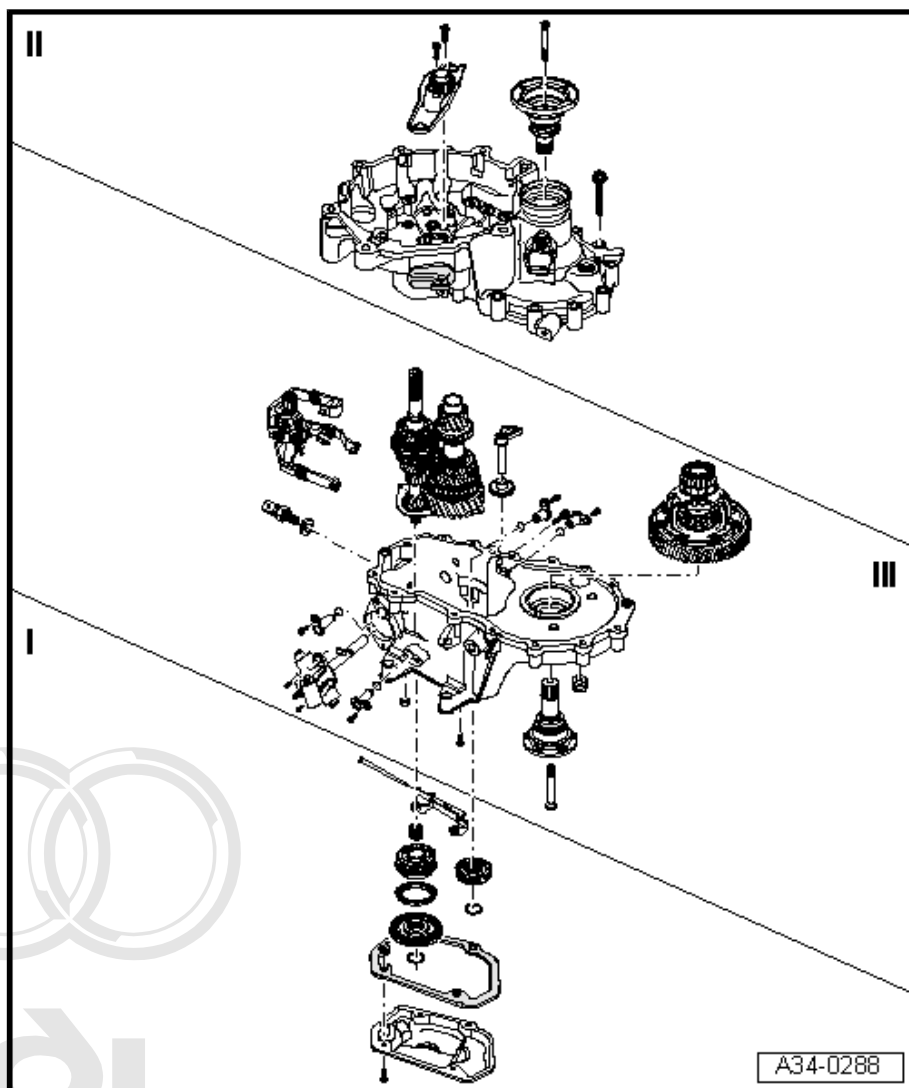


Sequence for dismantling and assembling ⇒ [page 64](#)

I - Removing and installing
cover for gearbox housing and
5th gear ⇒ [page 60](#)

II - Removing and installing
clutch housing ⇒ [page 61](#)

III - Removing and installing in-
put shaft, output shaft, differ-
ential, selector mechanism
and selector forks
⇒ [page 62](#)



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

4.2 Removing and installing gearbox housing cover and 5th gear

1 - Gearbox housing

2 - 5th gear wheel

- ☐ Installation position

⇒ [page 70](#)

3 - Circlip

- ☐ Renew
- ☐ Determining thickness

⇒ [page 71](#)

4 - Gasket

5 - Gearbox housing cover



Note

If the gearbox housing cover is installed with the gearbox in the vehicle, check and top up oil
⇒ [page 57](#).

6 - Bolt

- ☐ 5 Nm and turn 90° further
- ☐ Always renew

7 - Circlip

- ☐ Renew
- ☐ Determining thickness

⇒ [page 71](#)

8 - Synchronising hub with locking collar and check ring for 5th gear

- ☐ Dismantling and assembling

⇒ [page 85](#)

9 - 5th gear synchro-ring

10 - 5th speed selector gear

11 - Needle bearing

- ☐ For 5th gear
- ☐ Renew together with sleeve ⇒ [Item 6 \(page 88\)](#)

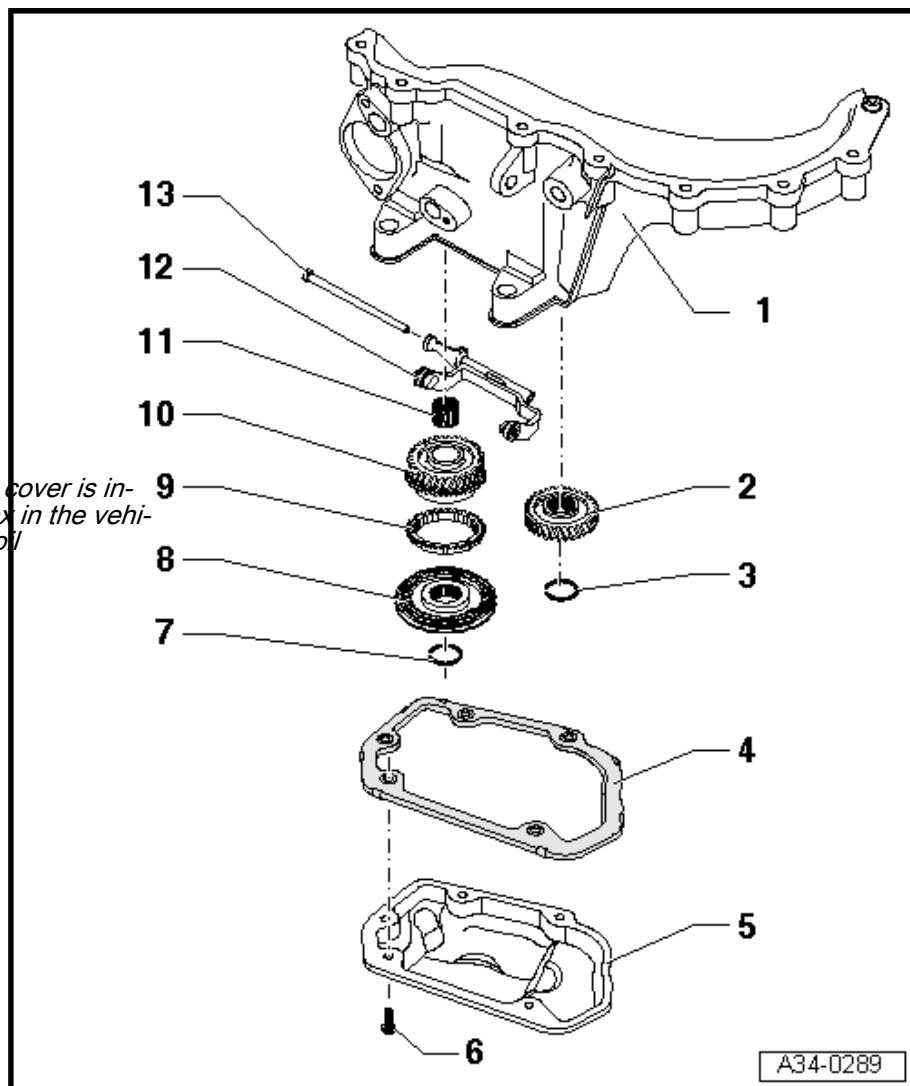
12 - 5th gear selector fork

- ☐ Dismantling and assembling

⇒ [page 81](#)

13 - Pivot pin

- ☐ for 5th gear selector fork



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

4.3 Removing and installing clutch housing

1 - Countersunk bolt

- ☐ 25 Nm

2 - Flange shaft with spring

- ☐ Removing and installing
⇒ [page 64](#)
- ☐ Assembling ⇒
⇒ [page 109](#)

3 - Bolt

- ☐ 5 Nm and turn 90° further
- ☐ Always renew

4 - Clutch housing

- ☐ Servicing ⇒ [page 72](#)

5 - Gearbox housing

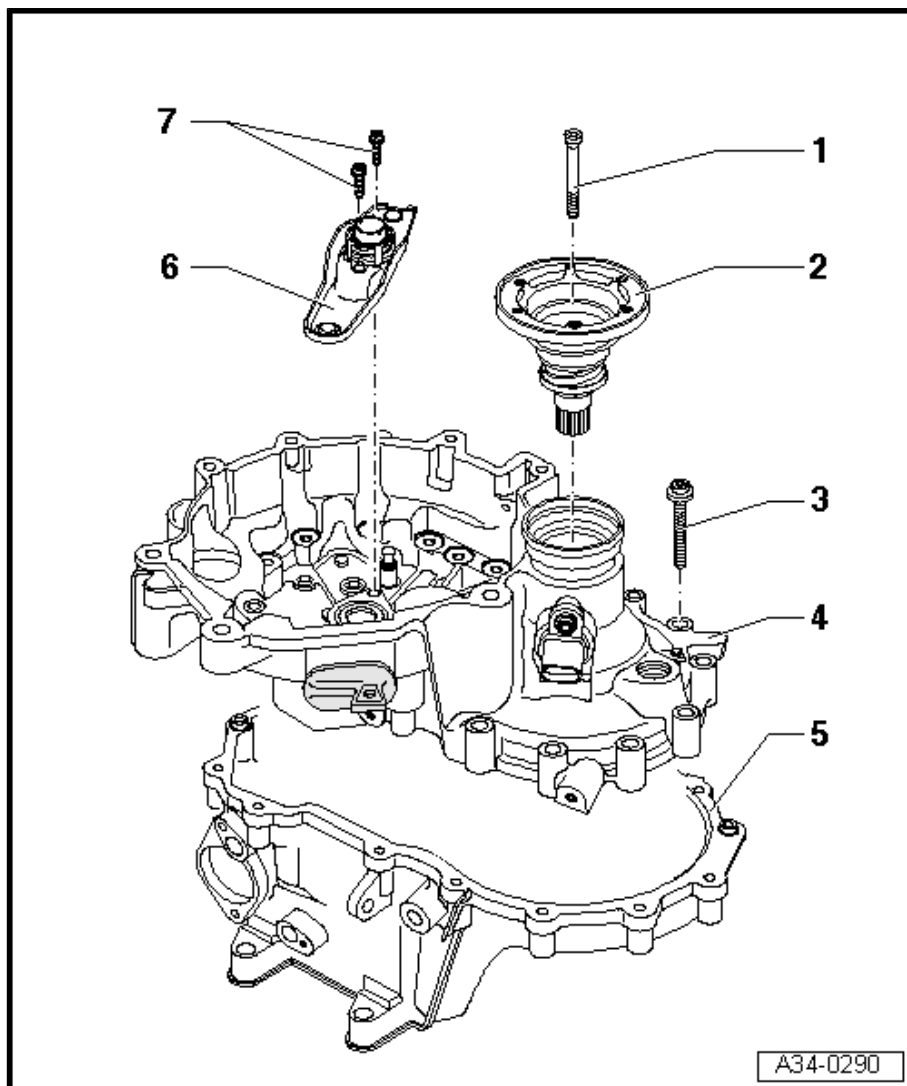
- ☐ Servicing ⇒ [page 72](#)

6 - Clutch release lever

- ☐ With guide sleeve and
release bearing
- ☐ Removing and installing
⇒ [page 64](#)

7 - Bolt

- ☐ 5 Nm and turn 90° further
- ☐ Always renew



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

4.4 Removing and installing input shaft, output shaft (pinion shaft), differential, selector mechanism and selector forks

1 - Differential

- ☐ Dismantling and assembling ⇒ [page 109](#)

2 - Gearbox housing

- ☐ Servicing ⇒ [page 72](#)

3 - Oil drain plug

- ☐ 25 Nm

4 - Flange shaft with spring

- ☐ Removing and installing ⇒ [page 64](#)
- ☐ Assembling ⇒ [page 109](#)

5 - Countersunk bolt

- ☐ 25 Nm

6 - Bolt

- ☐ 5 Nm and turn 90° further
- ☐ Self-locking
- ☐ Always renew
- ☐ Secures bearing mounting with grooved ball bearings for input and output shafts ⇒ [Item 16 \(page 63\)](#)

7 - Nut

- ☐ 23 Nm
- ☐ For selector mechanism ⇒ [Item 15 \(page 63\)](#)
- ☐ Self-locking
- ☐ Always renew

8 - O-ring

- ☐ Always renew

9 - Pivot pin

10 - Bolt

- ☐ 5 Nm and turn 90° further
- ☐ Always renew

11 - Selector shaft with selector mechanism cover

- ☐ Dismantling and assembling ⇒ [page 78](#)

12 - Bolt

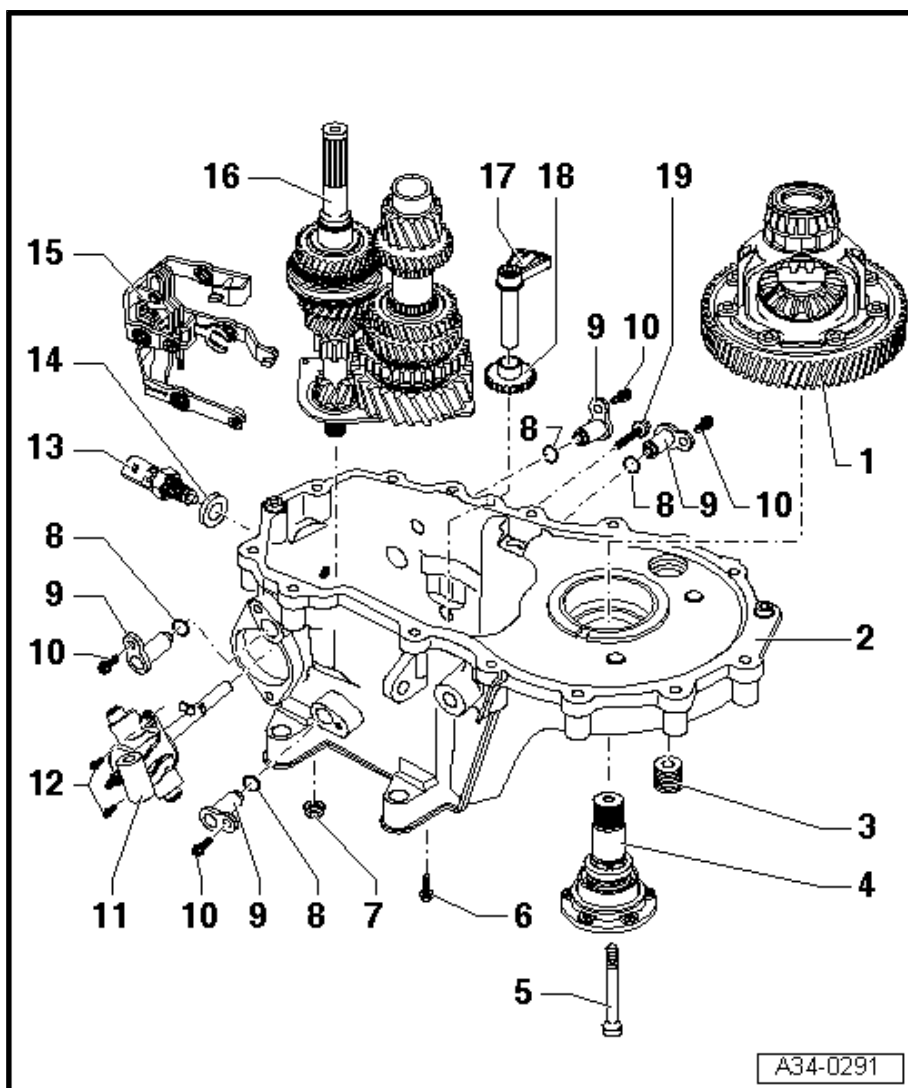
- ☐ 5 Nm and turn 90° further
- ☐ Always renew

13 - Reversing light switch -F4-

- ☐ 20 Nm
- ☐ If a captive seal is fitted on the switch, it need not be replaced.

14 - Seal

- ☐ If fitted, always renew



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

15 - Selector mechanism

- ☐ (Selector forks)
- ☐ Dismantling and assembling ⇒ [page 81](#)

16 - Input and output shafts with bearing mounting/grooved ball bearings

- ☐ If bearing mounting is separated from gearbox housing, it must always be renewed
- ☐ Pressing bearing mounting on and off ⇒ [page 85](#)
- ☐ Dismantling and assembling input shaft ⇒ [page 85](#)
- ☐ Dismantling and assembling output shaft ⇒ [page 97](#)

17 - Reverse gear shaft

18 - Reverse gear wheel

19 - Bolt

M6 - 5 Nm and turn 90° further

M8 - 25 Nm and turn 90° further

- ☐ For securing reverse gear shaft
- ☐ Always renew

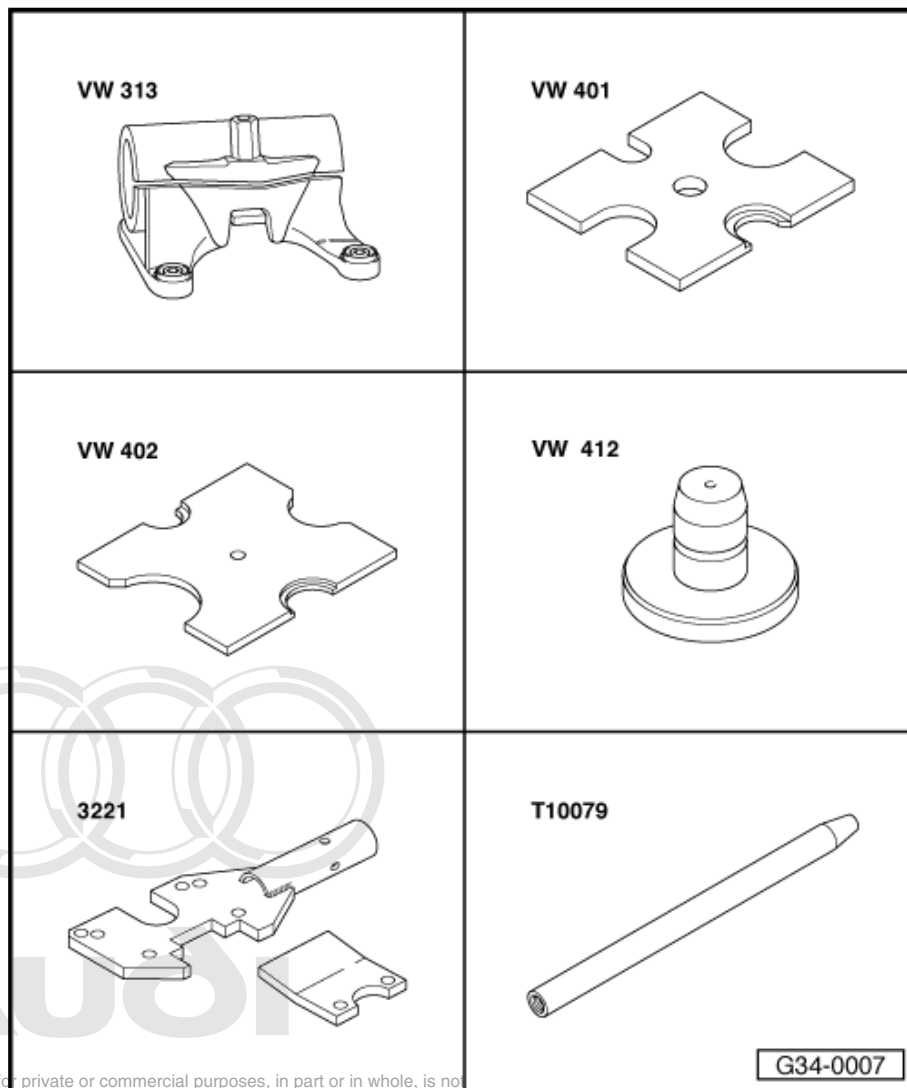
protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

4.5 Dismantling and assembling sequence

Removing and installing cover for gearbox housing, clutch housing, selector shaft with selector cover, input shaft, output shaft (pinion shaft), differential and selector mechanism

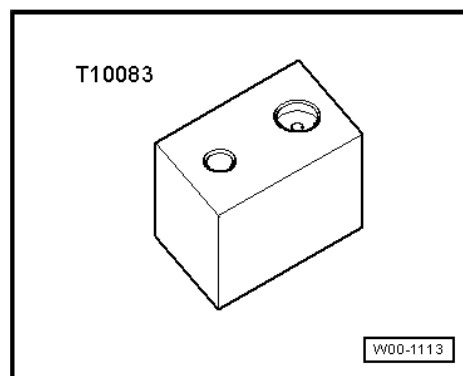
Special tools and workshop equipment required

- ◆ Support clamp -VW 313-
- ◆ Thrust plate -VW 401-
- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 412-
- ◆ Gearbox support -3221- (modifying ⇒ [page 65](#))
- ◆ Guide pin -T10079-

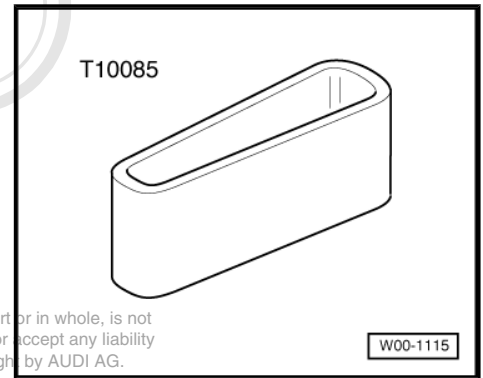


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ◆ Thrust block -T10083-



◆ Thrust piece -T10085-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

◆ Drip tray

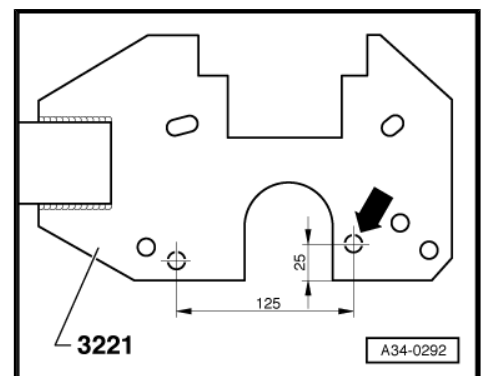
4.6 Modifying gearbox support 3221

A new drilling must be made in order to secure manual gearbox 02T on the gearbox support -3221- .

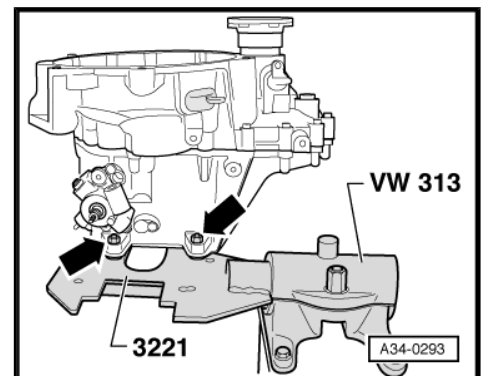
Dimensions are given in mm.

- Drill 11.0 mm $\varnothing$ hole -arrow- in gearbox support -3221- .

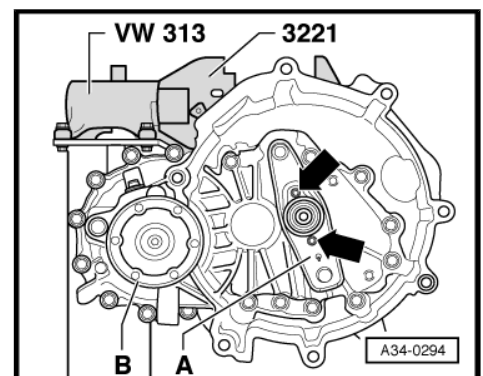
Dismantling gearbox



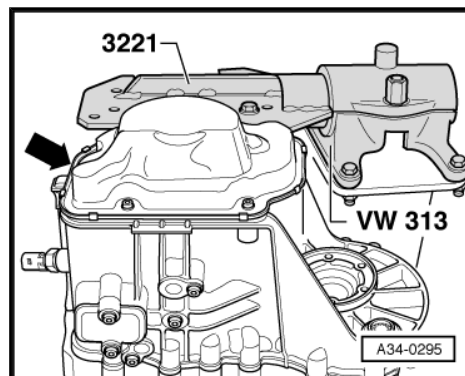
- Secure gearbox to assembly stand -arrows-.
- Place drip tray under the gearbox.
- Drain off gear oil.



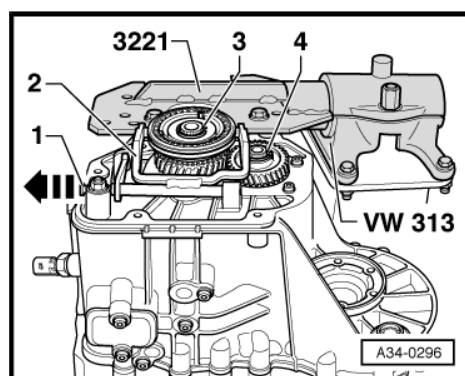
- Remove clutch release lever -A- together with clutch release bearing and guide sleeve -arrows-.
- Remove securing bolt for flange shaft (right-side) -B-. To do so, screw two bolts into flange and counterhold flange shaft with tyre iron or other suitable lever.
- Pull out flange shaft together with spring, thrust washer and tapered ring.



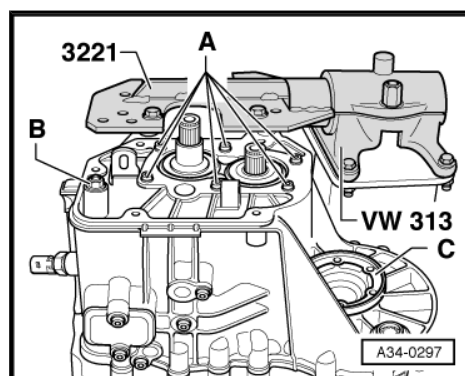
- Unbolt gearbox housing cover -arrow-.



- Pull out pivot pin -1- for 5th gear selector fork -2- and remove selector fork.
- Remove circlip -3- for 5th gear synchronising hub.
- Detach locking collar with synchronising hub, 5th speed selector gear with synchroniser ring and needle bearing from input shaft.
- Remove circlip -4- for 5th gear wheel and gear wheel.

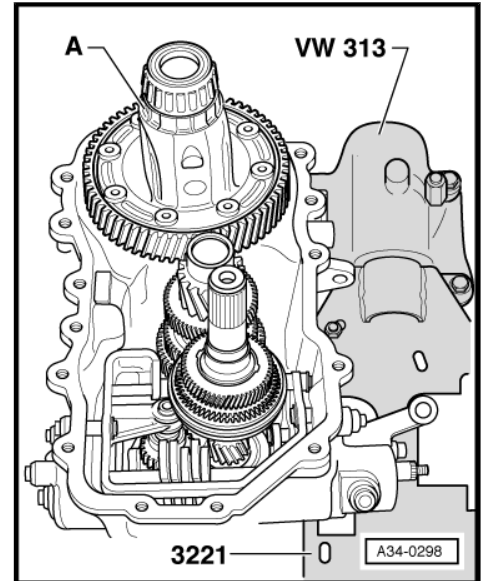


- Unscrew securing bolts -A- for bearing mounting for input and output shaft.
- Unscrew hexagon flange nut -B- for selector mechanism (reverse gear wheel mounting).
- Remove securing bolt for flange shaft (left-side) -C-. To do so, screw two bolts into flange and counterhold flange shaft with tyre iron or other suitable lever.
- Remove flange shaft -C- with spring.
- Turn gearbox in assembly stand so that clutch housing faces upwards.
- Remove bolts securing gearbox housing from inside clutch housing.
- Carefully remove clutch housing by levering alternately at the protruding webs on the housing, taking care not to damage the sealing surfaces.

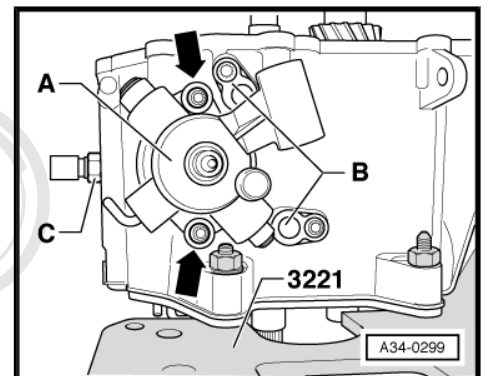


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Remove differential -A- from gearbox housing.



- Remove selector shaft with selector mechanism cover -A-. For this purpose, bring selector shaft into the neutral position. Then remove bolts -arrows- and pull selector shaft out of gearbox housing.
- Remove pivot pins -B- from top of gearbox.
- Remove reversing light switch -F4- -C-.



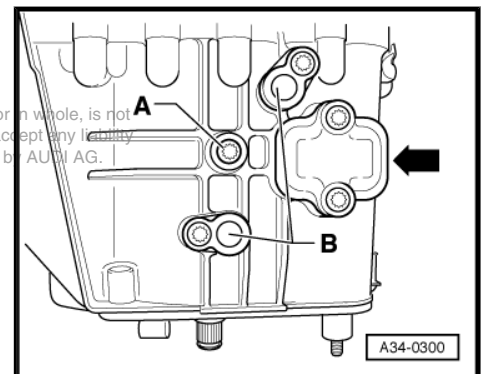
- Remove bolt -A- for securing reverse gear shaft.
- Remove pivot pins -B- from gearbox underside.



Note

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Do not remove cover plate -arrow- to dismantle gearbox.



- Press out input and output shafts together with bearing mounting, selector mechanism (selector forks) and reverse gear wheel.

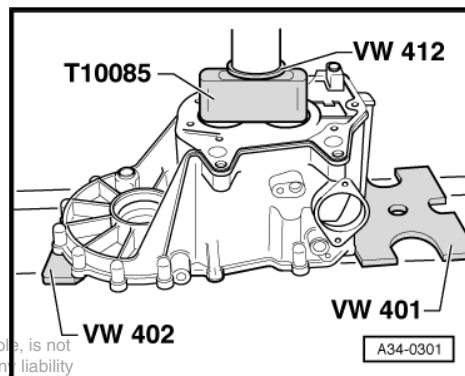


Note

- ◆ Place gearbox housing on thrust plate -VW 401- and thrust plate -VW 402- so that the dowel sleeves in the gearbox housing do not become damaged.
- ◆ Make sure components do not drop out when being removed (get help from a second person if necessary).

For commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- Press input and output shaft out of bearing mounting and grooved ball bearings ⇒ page ⇒ [page 85](#) .



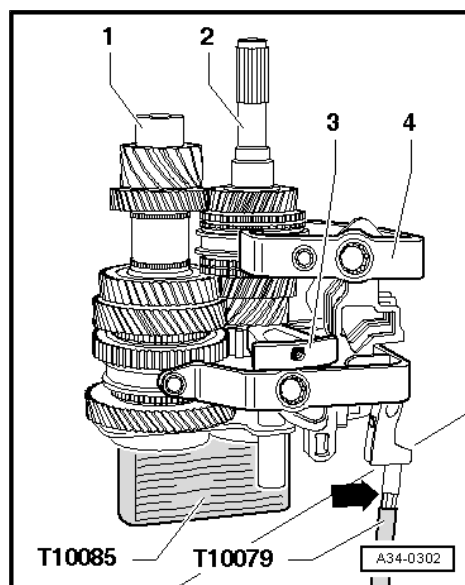
Assembling gearbox



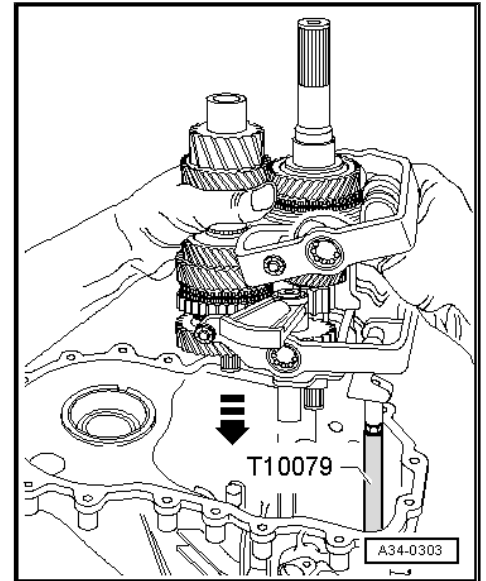
Note

- ◆ Pressing bearing mounting with grooved ball bearings onto input and output shafts ⇒ page ⇒ [page 85](#) .
- ◆ Pressing sleeve for 5th speed selector gear needle roller bearing onto input shaft ⇒ [page 85](#) .

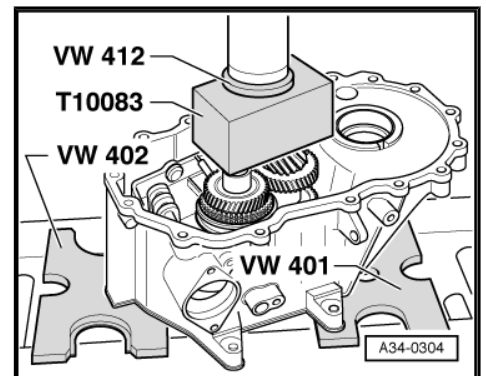
- Place the pre-assembled input shaft -2- and output shaft -1- with bearing mounting for grooved ball bearings in thrust piece -T10085- .
- Insert selector mechanism (selector forks) -4- in locking collars on shafts.
- Fit reverse gear shaft -3- with reverse gear wheel.
- Screw guide pin -T10079- onto threaded pin (reverse gear mounting) -arrow-.



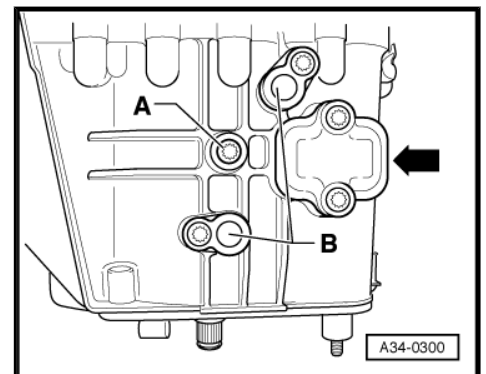
- Insert assembled components into gearbox housing, running guide pin -T10079- into gearbox housing through hole for selector mechanism mounting.
- Unscrew guide pin -T10079- .
- Check that selector forks engage correctly in locking collars before pressing in bearing mounting.



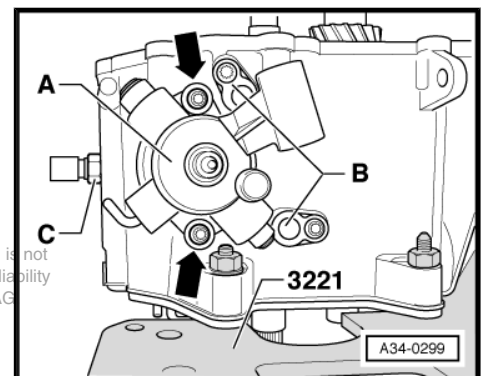
- Carefully press in bearing mounting together with input and output shafts as far as the stop.



- Screw in bolt -A- for reverse gear shaft.
- Install pivot pins -B- on underside of gearbox.



- Install reversing light switch -F4- -C-.
- Install pivot pins -B- on top of gearbox.
- Set selector plates in neutral position.
- Apply sealant -AMV 188 200- evenly to sealing surface of selector mechanism cover.
- Install selector shaft with selector mechanism cover -A-. Then tighten bolts -arrows-.



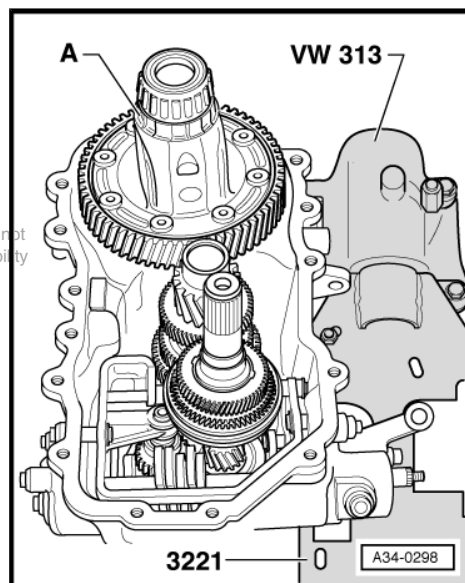
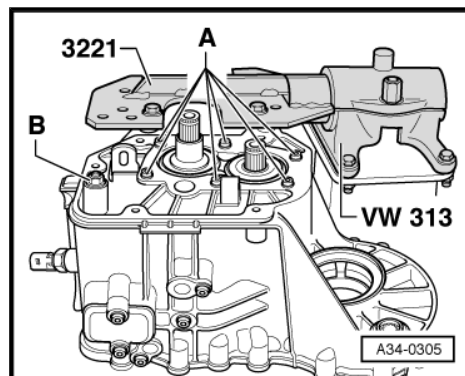
- Using new bolts -A-, secure bearing mounting for input and output shafts.


Note

Tighten the bolts in stages to the specified torque in diagonal sequence, starting in the centre.

- Tighten hexagon flange nut -B- for selector mechanism (selector forks).
- Install differential -A-.
- Apply sealant -AMV 188 200- evenly to sealing surface.
- Bolt clutch housing to gearbox housing.
- Turn the gearbox in the assembly stand so that the gearbox housing faces upwards.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

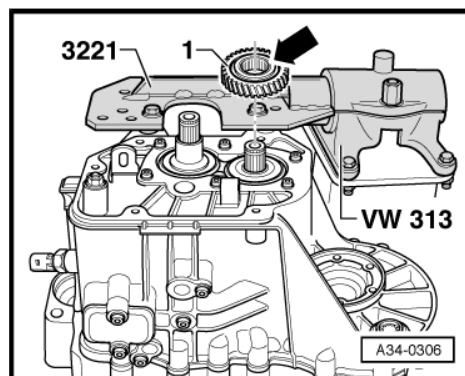


- Fit 5th gear wheel -1-.

Installation position of 5th gear wheel:

The high collar -arrow- points to the gearbox housing cover.

- Install 5th speed selector gear with needle bearing.
- Fit 5th gear synchro-ring on selector gear.
- Fit 5th gear synchronising hub complete with locking collar and check ring.

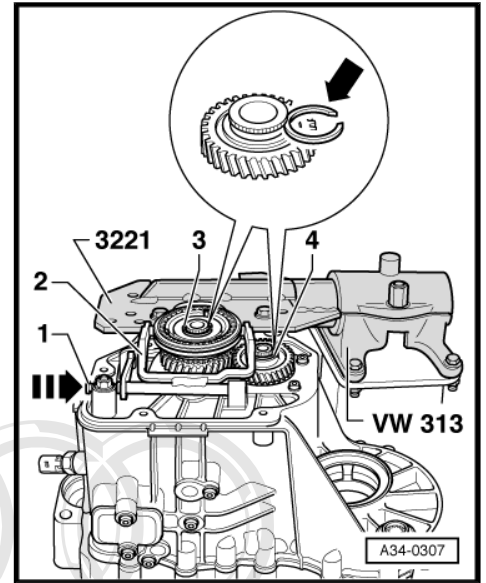


- Fit 5th gear selector fork -2- and slide pivot pin -1- in onto stop.
- Determine size of new circlip -arrow-.
- Fit circlip -the thickest one that just fits in- to the input shaft -3- and the output shaft -4-.

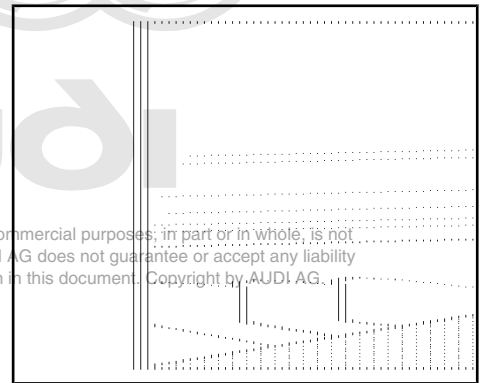
Circlips available

Thickness (mm)	Part No.
2.00	085 311 187
2.10	085 311 187 A
2.20	085 311 187 B

- Install gearbox housing cover.



- Install both flange shafts with springs, thrust washers and tapered rings.
- Install clutch release lever together with release bearing and guide sleeve ⇒ [page 23](#) .

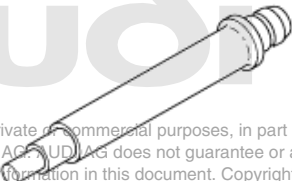
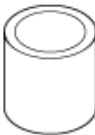
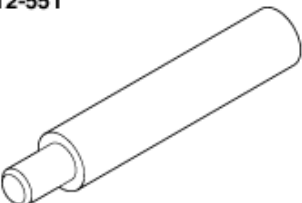
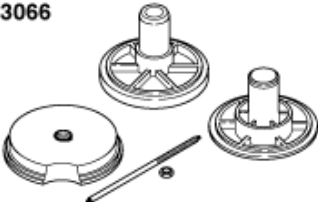


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

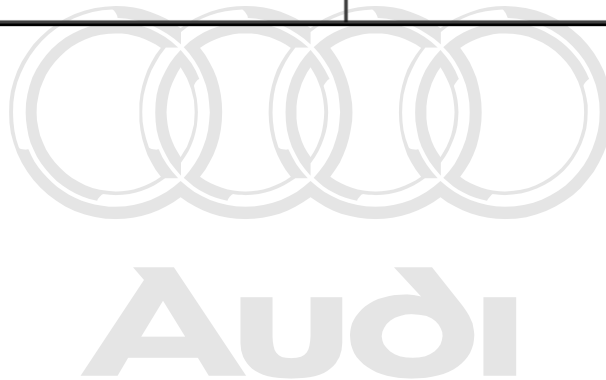
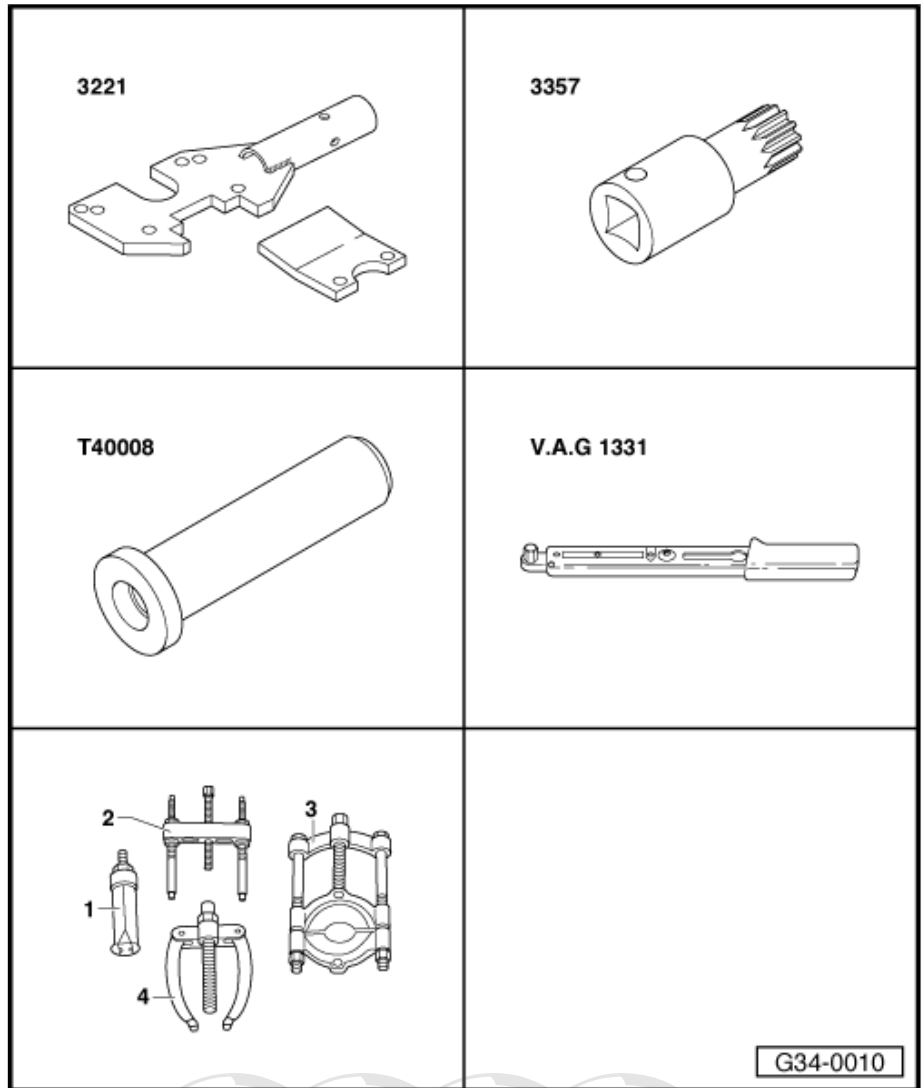
5 Servicing gearbox housing and clutch housing

Special tools and workshop equipment required

- ◆ Press tool -VW 408 A-
- ◆ Spacer sleeve -VW 472/2-
- ◆ Centring mandrel -12-551-
- ◆ Press tool -30-555-
- ◆ Assembly device -3066-
- ◆ Thrust piece -3124-

VW 408 A 	VW 472/2 
12-551 	30-555 
3066 	3124  G34-0009

- ◆ Gearbox support -3221-
(modifying ⇒ [page 65](#))
- ◆ Multi-point bit -3357-
- ◆ Thrust piece -T40008-
- ◆ Torque wrench -V.A.G 1331-
- ◆ -2- puller , e.g. -Kukko 18/1-
- ◆ -3- Splitter 12...75 mm , e.g. -Kukko 17/1-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Clutch housing

- ☐ If renewed: adjust differential ⇒ [page 121](#)

2 - Input shaft oil seal

- ☐ Lever out with screwdriver
- ☐ Driving in ⇒ [page 76](#)

3 - Ball head stud

- ☐ 20 Nm
- ☐ Lubricate with MoS₂ grease

4 - Flange shaft oil seal (right-side)

- ☐ Renewing with gearbox installed ⇒ [page 106](#)

5 - Sleeve

- ☐ For oil seal
- ☐ Pulling out ⇒ [page 76](#)
- ☐ Drawing in ⇒ [page 76](#)

6 - Oil filler plug

- ☐ 25 Nm
- ☐ Remove and install with multi-point bit XZN 12-3357-

7 - O-ring

- ☐ Not fitted on gearboxes with code letters GKT, GRZ and GSK
- ☐ Allocate according to ⇒ Electronic parts catalogue
- ☐ If fitted, always renew

8 - Speedometer sender -G22-

- ☐ Not fitted on gearboxes with code letters GKT, GRZ and GSK
- ☐ A plug is fitted instead of sender on gearboxes with gearbox code letters GKT, GRZ and GSK
- ☐ Allocate according to ⇒ Electronic parts catalogue

9 - Bolt

- ☐ 5 Nm and turn 90° further
- ☐ Always renew

10 - Shim S₂

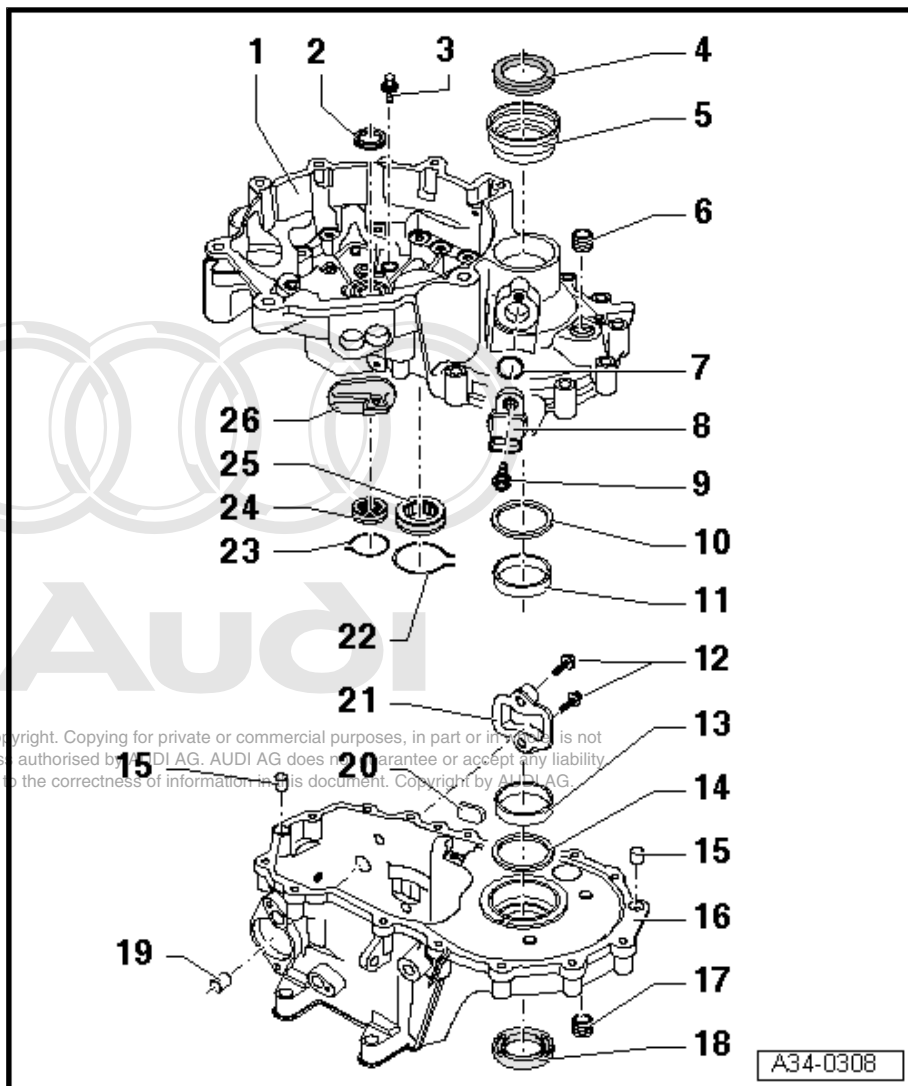
- ☐ For differential
- ☐ Determining thickness ⇒ [page 121](#)

11 - Tapered roller bearing outer race

- ☐ For differential
- ☐ Pulling out and pressing in ⇒ [page 109](#)
- ☐ If renewed: adjust differential ⇒ [page 121](#)

12 - Bolt

- ☐ 5 Nm and turn 90° further
- ☐ Always renew



13 - Tapered roller bearing outer race

- ☐ For differential
- ☐ Pulling out and pressing in ⇒ [page 109](#)
- ☐ If renewed: adjust differential ⇒ [page 121](#)

14 - Shim S₁

- ☐ For differential
- ☐ Always 1 mm thick

15 - Dowel sleeve

- ☐ 2x

16 - Gearbox housing

- ☐ Modification from gearbox build date 10 06 2: enlarged bearing seat for tapered roller bearing/differential ⇒ [page 115](#)
- ☐ For correct version, refer to ⇒ Electronic parts catalogue
- ☐ If renewed: adjust differential ⇒ [page 121](#)

17 - Oil drain plug

- ☐ 25 Nm

18 - Flange shaft oil seal (left-side)

- ☐ Renewing with gearbox installed ⇒ [page 104](#)

19 - Sleeve

- ☐ For selector shaft
- ☐ Driving out ⇒ [page 76](#)
- ☐ Driving in ⇒ [page 77](#)

20 - Magnet

- ☐ Held in place by joint surface of housing

21 - Cover plate

- ☐ Before tightening apply sealant -AMV 188 200- to sealing surface

22 - Circlip

- ☐ Fit in groove of roller bearing ⇒ [Item 25 \(page 75\)](#)

23 - Circlip

- ☐ Fit in groove of roller bearing ⇒ [Item 24 \(page 75\)](#)

24 - Roller bearing

- ☐ For input shaft
- ☐ Removing and installing ⇒ [page 85](#)

25 - Roller bearing

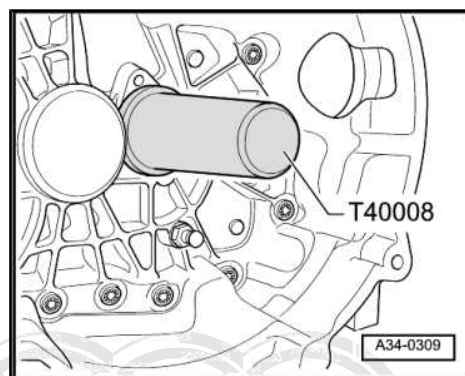
For output shaft

- ☐ For output shaft
- ☐ Removing and installing ⇒ [page 97](#)

26 - Plug

- ☐ Insert into bore of clutch housing

Driving in input shaft oil seal so it is flush

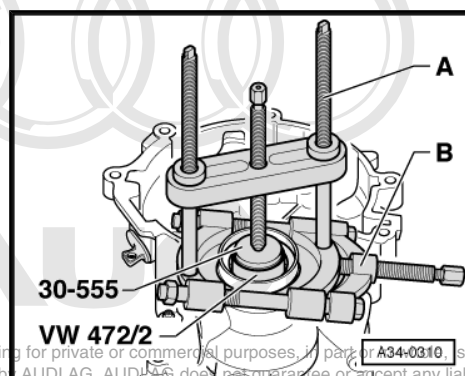


Pulling out oil seal sleeve

- Apply spacer sleeve -VW 472/2- and press tool -30-555- to differential.

A - Puller , e.g. -Kukko 18/1-

B - Splitter 12...75 mm , e.g. -Kukko 17/1-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Drawing in oil seal sleeve

A - Screw threaded spindle from assembly device -(3066)- into threaded piece in differential.

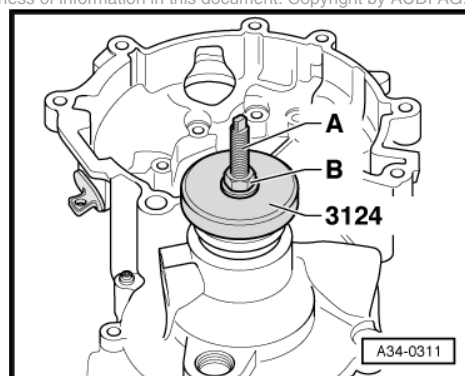
B - M12 nut with washer

- Turn nut -B- and pull sleeve in onto stop with thrust piece -3124- .

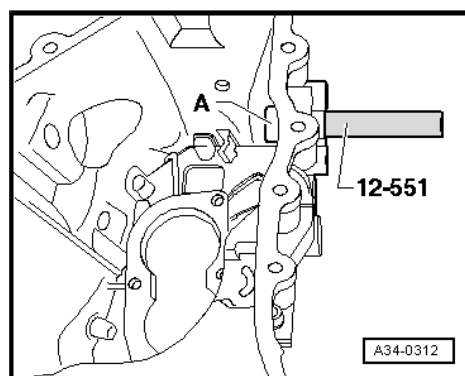


Note

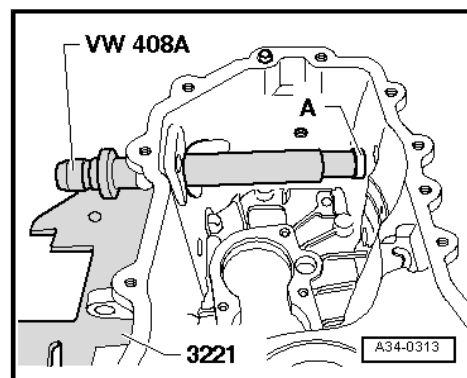
If gearbox has been dismantled, press in sleeve onto stop using thrust piece -3124- .



Driving out selector shaft sleeve -A-



Driving in selector shaft sleeve -A-

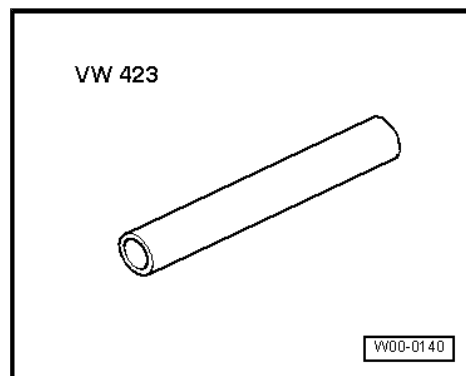


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

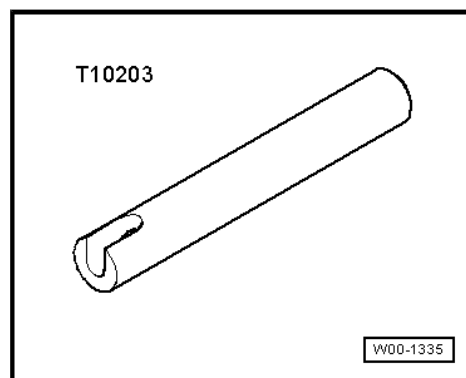
6 Dismantling and assembling selector mechanism in gearbox

Special tools and workshop equipment required

- ◆ Tube -VW 423-



- ◆ Tube -T10203-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

1 - Sleeve

- ☐ For selector shaft
- ☐ Driving out ⇒ [page 76](#)
- ☐ Driving in ⇒ [page 77](#)

2 - Selector shaft with selector mechanism cover

- ☐ Renew together

3 - Locking pin

- ☐ For adjusting selector mechanism
- ☐ Removing ⇒ [page 79](#)
- ☐ Driving in ⇒ [page 80](#)

4 - Relay lever

- ☐ Installation position ⇒ [page 41](#)

5 - Bearing bush

6 - Seal

- ☐ Lever out with screwdriver
- ☐ Fitting ⇒ [page 80](#)

7 - Cap

- ☐ For gearbox breather

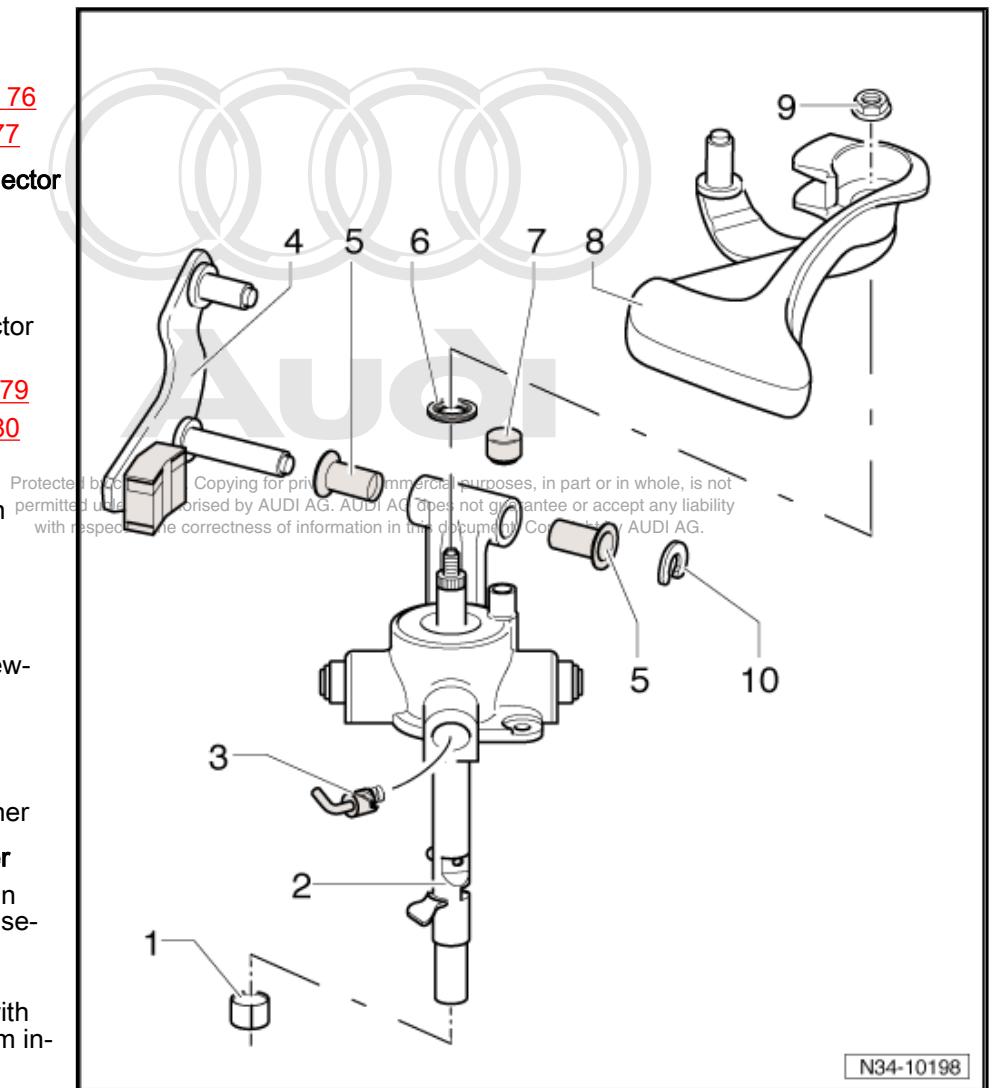
8 - Gearbox selector lever

- ☐ Install so that gap in splines aligns with selector shaft ⇒ [page 80](#)
- ☐ Can be renewed with selector mechanism installed
- ☐ Installation position ⇒ [page 41](#)

9 - Nut

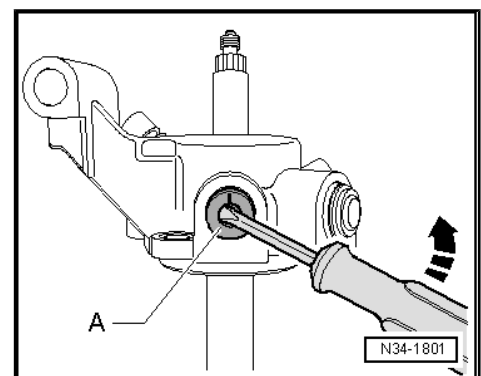
- ☐ 20 Nm
- ☐ Self-locking
- ☐ Always renew

10 - Securing clip



Removing locking pin -A- from selector mechanism cover

- Remove outer part of retaining pin.
- Then lever out locking pin carefully using a screwdriver.



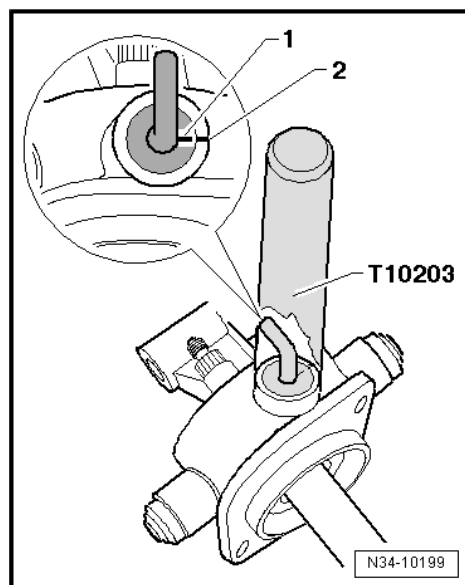
Driving locking pin -A- into selector mechanism cover

Installation position:

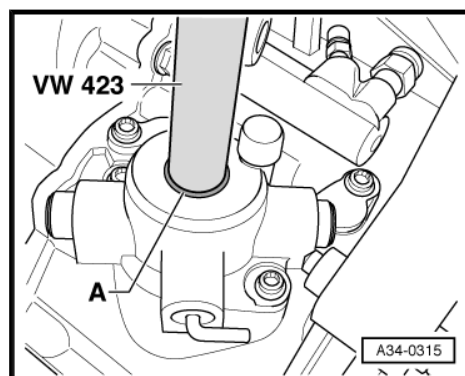
Marking -1- points towards marking -2- on selector mechanism cover.

Audi

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

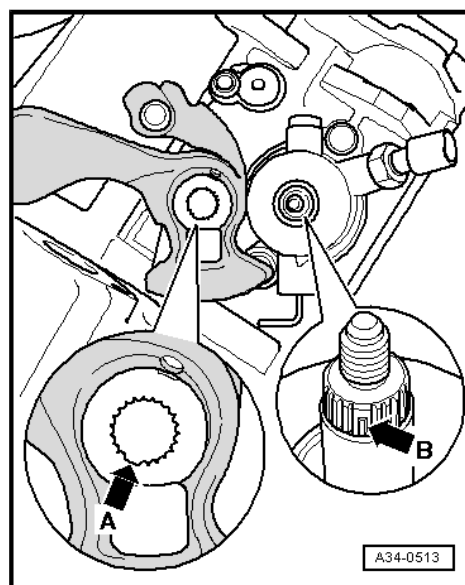


Installing oil seal -A- onto stop



Installing gearbox selector lever

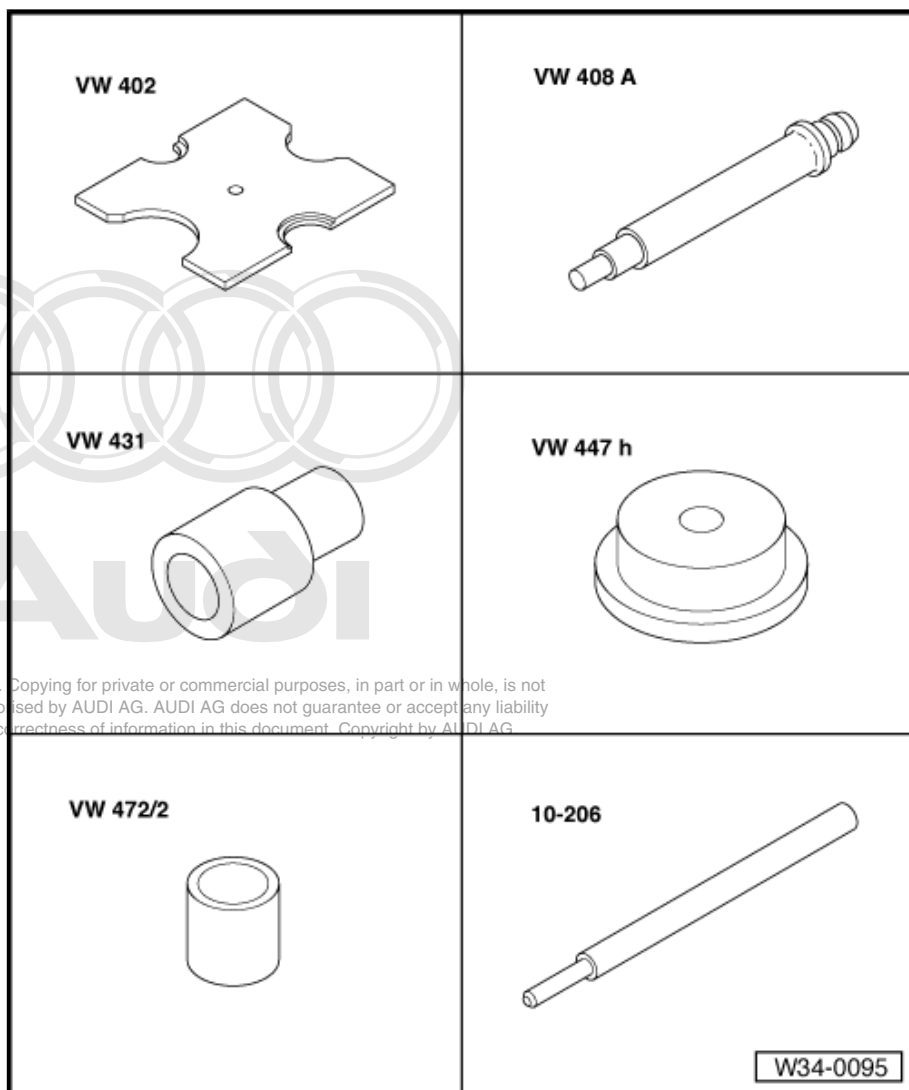
- When installing gearbox selector lever, make sure that the gap in the splines -arrow A- aligns with the wider spline -arrow B- on the selector shaft.



7 Dismantling and assembling selector forks

Special tools and workshop equipment required

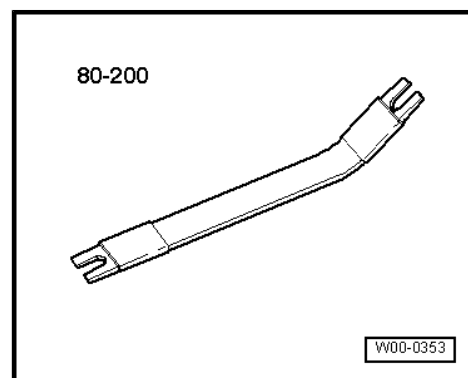
- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 408 A-
- ◆ Press tool -VW 431-
- ◆ Thrust plate -VW 447 H-
- ◆ Spacer sleeve -VW 472/2-
- ◆ Assembly mandrel -10 - 206-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG

Special tools and workshop equipment required

- ◆ Removal lever -80 - 200-





Note

- ◆ *Selector plates and selector forks are machined together (drilled). Always renew the complete selector mechanism if necessary.*
- ◆ *Do not confuse selector plate for 1st/2nd gear
⇒ [Item 10 \(page 82\)](#) with selector plate for 3rd/4th gear
⇒ [Item 9 \(page 82\)](#).*

1 - 3rd/4th gear selector fork

2 - Angular contact ball bearing

❑ Removing ⇒ [page 83](#)

❑ Pressing in

⇒ [page 83](#)

3 - Lock washer

❑ Removing ⇒ [page 83](#)

❑ Installing ⇒ [page 83](#)

4 - Securing clip

5 - Washer

6 - Detent segment

❑ Identification

⇒ [page 84](#)

❑ After installing circlip the detent segment must rotate freely

7 - Detent segment

❑ Identification

⇒ [page 84](#)

❑ After installing circlip the detent segment must rotate freely

8 - 5th gear selector plate

9 - 3rd/4th gear selector plate

10 - 1st/2nd gear selector plate

11 - Reverse gear selector plate

12 - Pin

13 - Reverse gear selector fork

14 - Reverse gear mounting

15 - Securing clip

16 - 1st/2nd gear selector fork

17 - Detent segment

❑ Identification ⇒ [page 84](#)

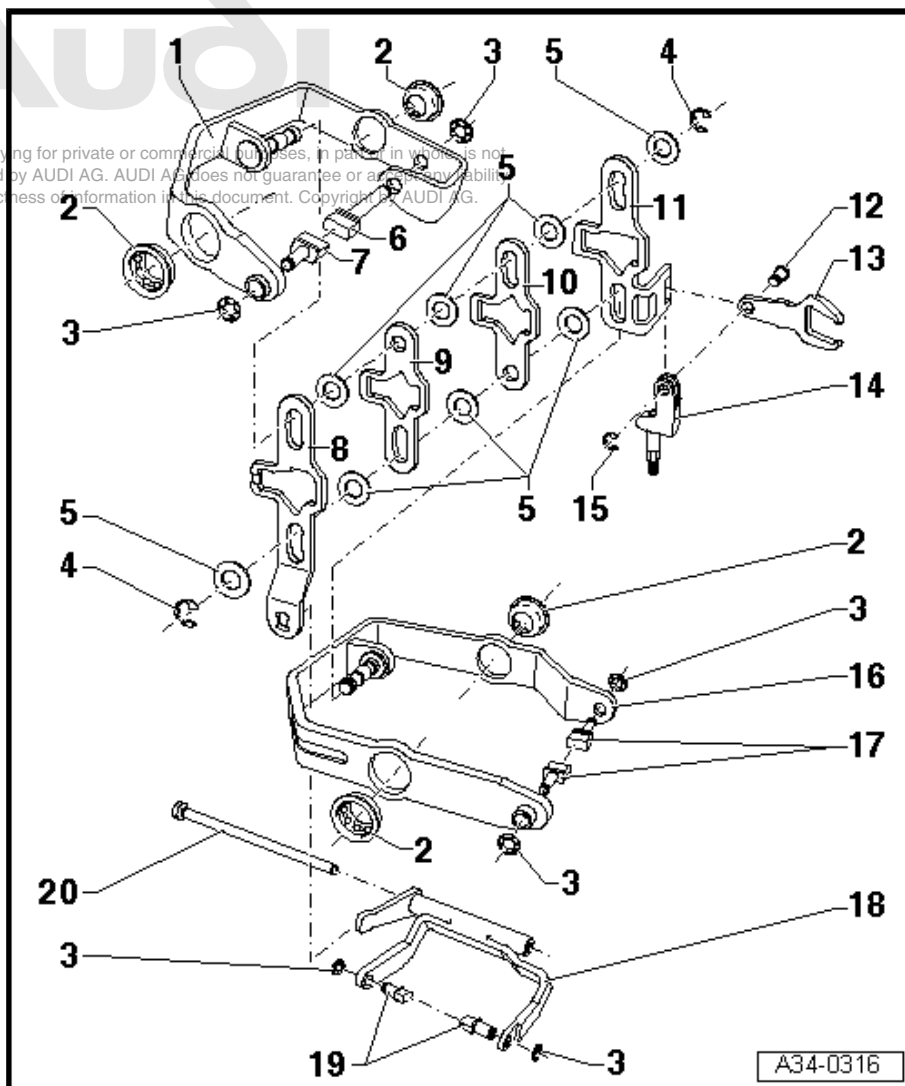
❑ The segment must rotate freely after installing the lock washer

18 - 5th gear selector fork

19 - Detent segment

❑ Identification ⇒ [page 84](#)

❑ The segment must rotate freely after installing the lock washer



20 - Pivot pin

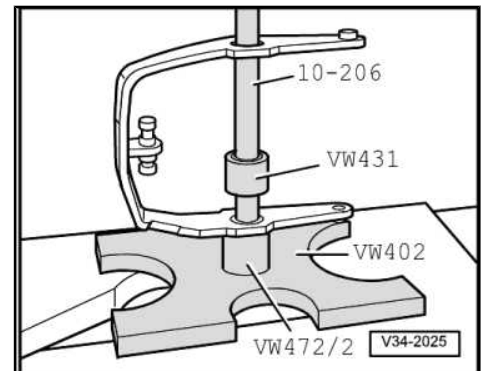
- ☐ for 5th gear selector fork

Removing angular contact ball bearing

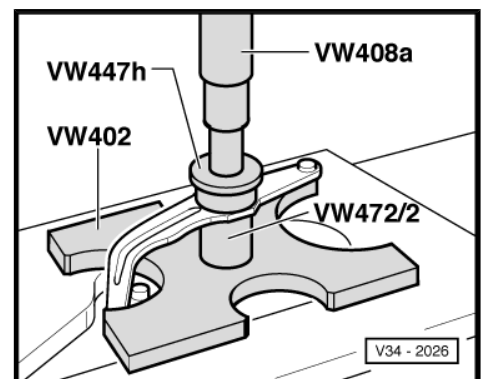


Note

Do not bend selector forks when removing and installing the ball bearing.

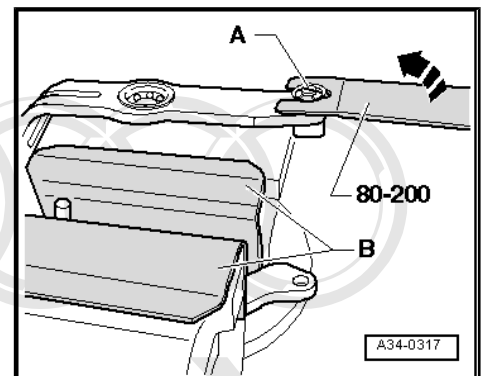


Pressing in angular contact ball bearing onto stop



Removing lock washer

- Secure selector fork in vice with soft jaws -B-.
- Lever off lock washer -A- in direction of -arrow-.



Installing lock washer

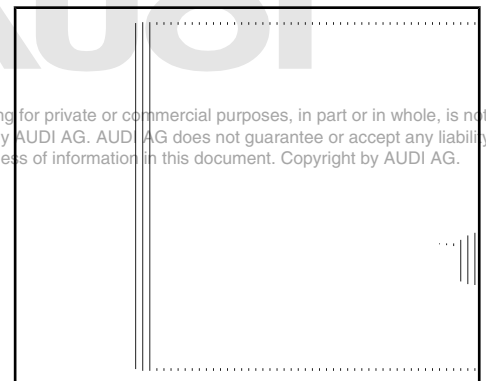
- Push lock washer into groove in detent segment using socket driver.



Note

After installing circlip the lock washer must rotate freely.

- A- Socket driver, 10 mm
- B- Protective jaw covers

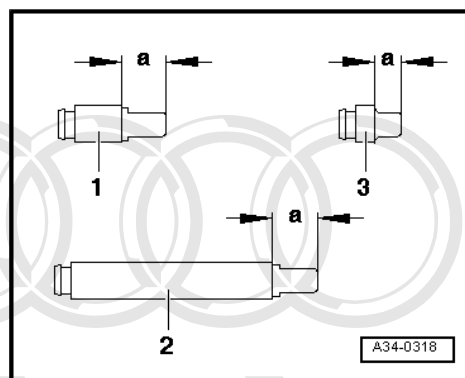


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Identification of detent segments

Distance -a-

- | | | |
|---|---|------|
| 1 - Detent segment for 1st and 2nd gear and short detent segment for 3rd and 4th gear | = | 10.2 |
| 2 - Long detent segment for 3rd and 4th gear | = | 10.2 |
| 3 - 5th gear detent segment | = | 6.0 |



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

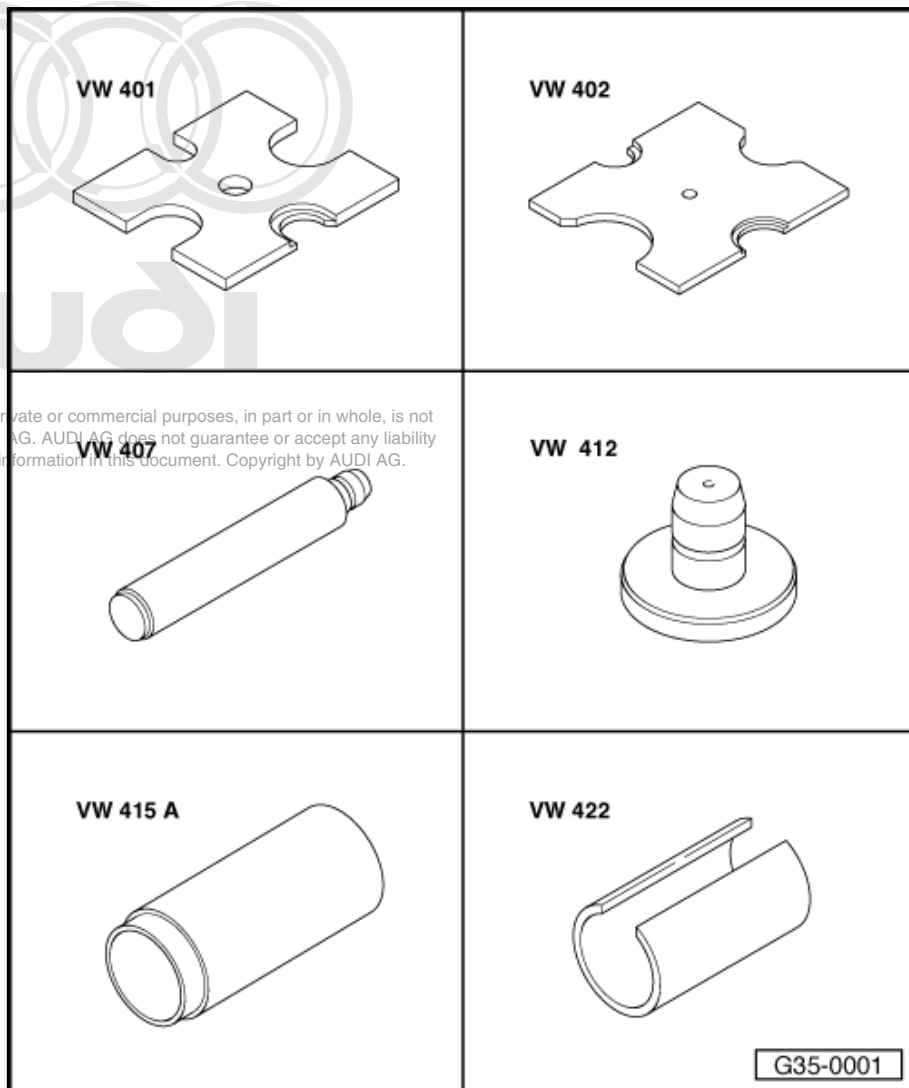
35 – Gears, shafts

1 Dismantling and assembling input shaft

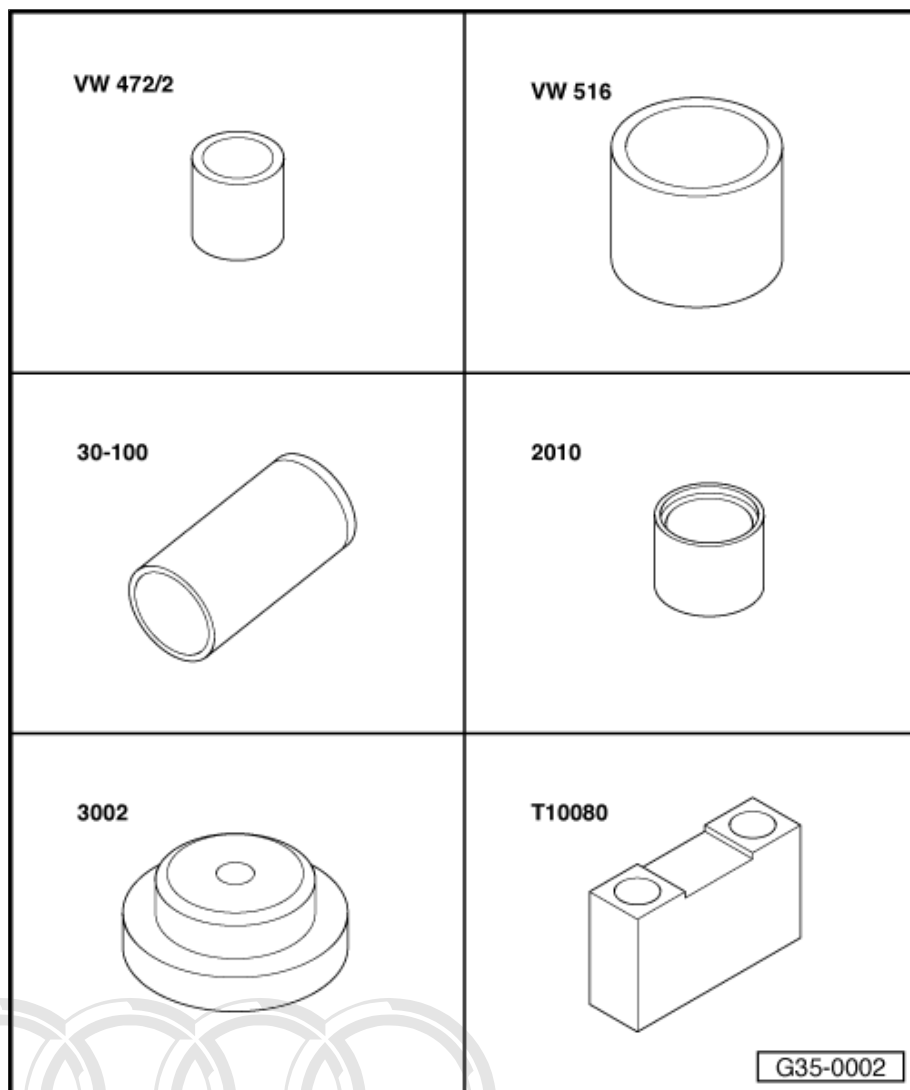
Special tools and workshop equipment required

- ◆ Thrust plate -VW 401-
- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 407-
- ◆ Press tool -VW 412-
- ◆ Tube -VW 415 A-
- ◆ Tube -VW 422-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

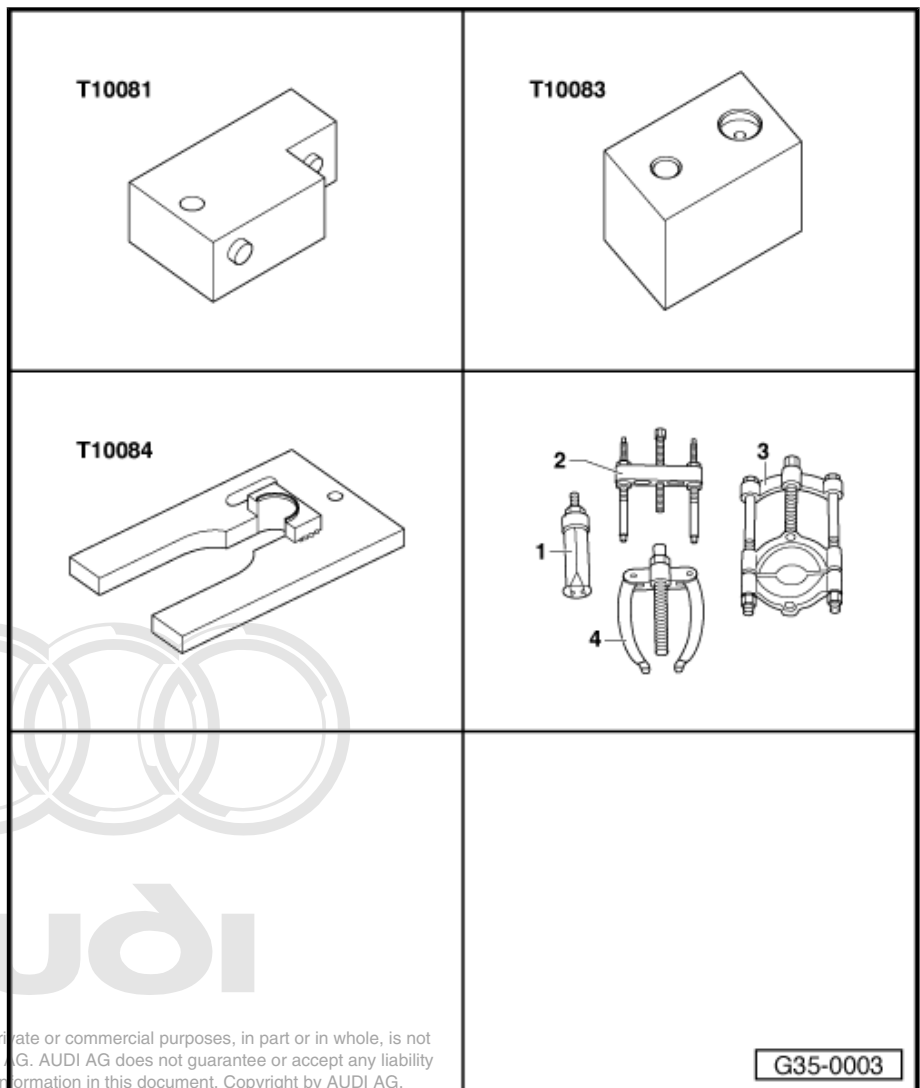


- ◆ Spacer sleeve -VW 472/2-
- ◆ Tube -VW 516-
- ◆ Drift sleeve -30 - 100-
- ◆ Tube -2010-
- ◆ Thrust piece -3002-
- ◆ Thrust piece -T10080-




Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ◆ Thrust piece -T10081-
- ◆ Thrust block -T10083-
- ◆ Thrust plate -T10084 A-
- ◆ -1- Internal puller 30...37 mm , e.g. -Kukko 21/5-
- ◆ -2- puller , e.g. -Kukko 18/1-
- ◆ -3- Splitter 12...75 mm , e.g. -Kukko 17/1-
- ◆ -4- Counter support , e.g. -Kukko 22/1-



Note

- ◆ Refer to technical data when installing new gears ⇒ [page 1](#) .
- ◆ Lubricate all bearings, selector gears and synchro-rings on input shaft with gear oil before installing.
- ◆ Do not interchange synchro-rings. When re-using synchro-rings, always fit on the same selector gear.

1 - Circlip

- ☐ Always renew
- ☐ Determining thickness
⇒ [page 71](#)

2 - Locking collar with synchronising hub for 5th gear

- ☐ Removing and installing
⇒ from Page ⇒ [page 64](#)
- ☐ Dismantling
⇒ [page 95](#)
- ☐ Assembling 5th gear locking collar/synchronising hub ⇒ [page 95](#)
⇒ [page 95](#)
- ☐ Installation position
⇒ [page 95](#)

3 - 5th gear synchro-ring

- ☐ Checking for wear
⇒ [page 92](#)

4 - 5th speed selector gear

5 - Needle bearing

- ☐ For 5th gear
- ☐ Renew together with
⇒ [Item 6 \(page 88\)](#)

6 - Sleeve

- ☐ For 5th gear needle bearing
- ☐ Renew together with
⇒ [Item 5 \(page 88\)](#)
- ☐ Press off with bearing mounting/grooved ball bearing ⇒ [page 90](#).
- ☐ Pressing on
⇒ [page 94](#)

7 - Gearbox housing

8 - Bearing mounting with grooved ball bearings

- ☐ If bearing mounting is separated from gearbox housing, it must always be renewed
- ☐ Only renew grooved ball bearings together with bearing mounting.
- ☐ Pressing off ⇒ [page 90](#)
- ☐ Pressing on ⇒ [page 94](#)

9 - Input shaft

10 - Needle bearing

- ☐ For 3rd gear

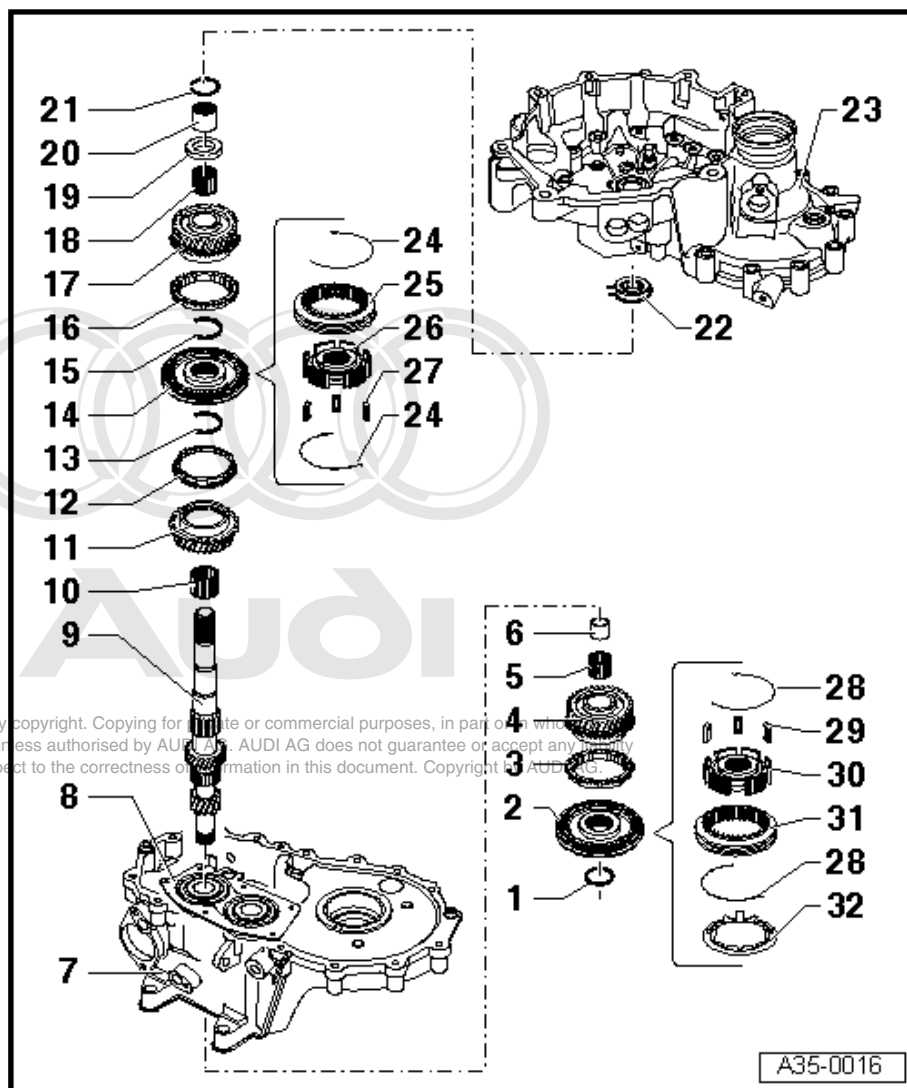
11 - 3rd speed selector gear

12 - 3rd gear synchro-ring

- ☐ Checking for wear ⇒ [page 92](#)

13 - Circlip

- ☐ Fitted on gearboxes with code letters EYX and FDM
- ☐ Modification: not fitted from 07.01 onwards
- ☐ Pressing out ⇒ [page 91](#)
- ☐ Fitting ⇒ [page 93](#)



14 - Locking collar with synchronising hub for 3rd and 4th gear

- ☐ Press off with 3rd speed selector gear ➔ [page 91](#)
- ☐ Dismantling ➔ [page 91](#)
- ☐ Installation position: Locking collar/synchronising hub ➔ [page 92](#)
- ☐ Assembling ➔ [page 92](#)
- ☐ Pressing on ➔ [page 92](#)

15 - Circlip

- ☐ Fitted on gearboxes with code letters EYX and FDM
- ☐ Modification: not fitted from 07.01 onwards
- ☐ Pressing out ➔ [page 91](#)
- ☐ Fitting ➔ [page 93](#)

16 - 4th gear synchro-ring

- ☐ Checking for wear ➔ [page 92](#)

17 - 4th speed selector gear

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted without the prior written consent of AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

18 - Needle bearing

- ☐ For 4th gear
- ☐ Modification: from 07.01 onwards, needle bearing is fitted with additional sleeve; allocate via ➔ Electronic parts catalogue
- ☐ Pressing off sleeve for needle bearing ➔ [page 91](#)
- ☐ Pressing on sleeve for needle bearing ➔ [page 93](#)

19 - Thrust washer

20 - Inner race for roller bearing

- ☐ Pull off together with 3rd speed selector gear ➔ [page 90](#)
- ☐ Pressing on ➔ [page 93](#)

21 - Circlip

- ☐ Renew
- ☐ Determining thickness ➔ [page 94](#)

22 - Roller bearing

- ☐ With circlip
- ☐ Pulling out ➔ [page 90](#)
- ☐ Pressing in ➔ [page 90](#)
- ☐ Installation position: Circlip in bearing faces towards input shaft

23 - Clutch housing

24 - Spring

- ☐ Installation position ➔ [page 92](#)

25 - Locking collar for 3rd and 4th gear

26 - Synchronising hub for 3rd and 4th gear

27 - Locking pieces (3x)

28 - Spring

- ☐ Installation position ➔ [page 95](#)

29 - Locking pieces (3x)

30 - 5th gear synchronising hub

31 - 5th gear locking collar

32 - Check ring

- ☐ Prevents locking pieces from moving out
- ☐ Removing ➔ [page 95](#)

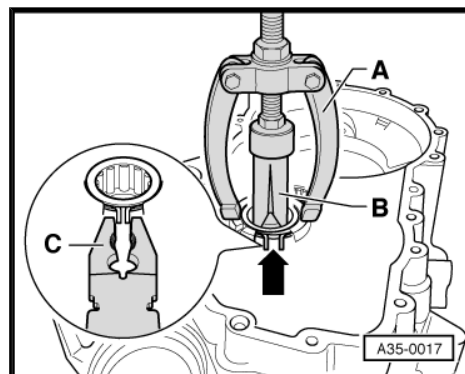
❑ Installing ⇒ [page 96](#)

Pulling roller bearing out of clutch housing

- When pulling out, compress circlip -arrow- for roller bearing using pliers -C-.

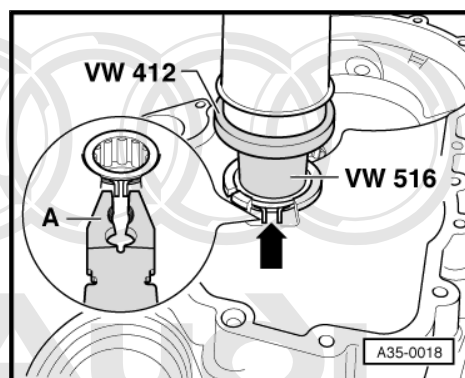
A - Counter-support , e.g. -Kukko 22/1-

B - Internal puller 30 ... 37 mm , e.g. -Kukko 21/5-



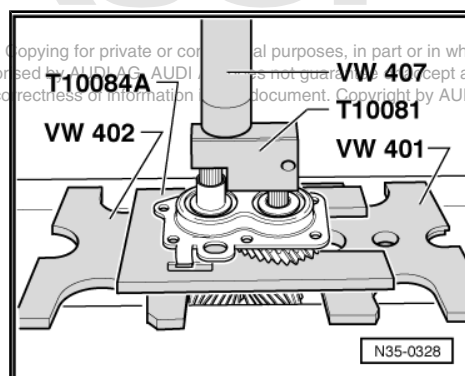
Pressing roller bearing into clutch housing

- Support clutch housing using tube -VW 415 A- (not visible in diagram) directly under bearing mounting.
- When pressing in, compress circlip -arrow- for roller bearing using pliers -A-.
- Remove the pliers before the roller bearing is in its final position. The circlip must engage in the groove in the clutch housing.



Pressing off bearing mounting and grooved ball bearings

- Slide locking collar for 1st and 2nd gear onto 2nd gear.
- Slide in thrust plate -T10084 A- sideways until it contacts input shaft.
- Insert centralising pins in thrust piece -T10081- into bores in input and output shafts.



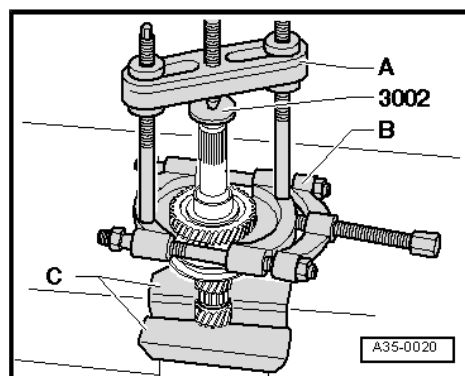
Pulling off roller bearing inner race with 4th speed selector gear

- First remove circlip.
- Clamp splitter -B- behind driving teeth (not dog teeth) on 4th gear.

A - Puller , e.g. -Kukko 18/1-

B - Splitter 12...75 mm , e.g. -Kukko 17/1-

C - Jaw protectors





Note

From gearbox build date 07.01 onwards, roller bearing inner race can be pressed off together with 4th speed selector gear, locking collar and synchronising hub for 3rd and 4th gear and 3rd speed selector gear.

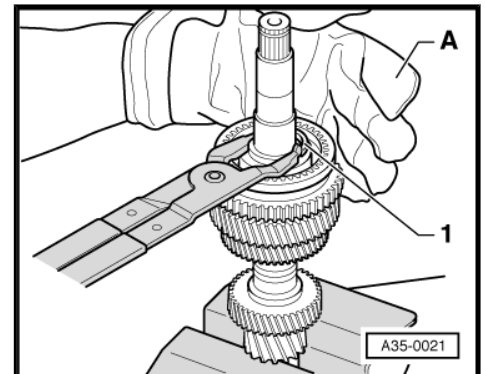
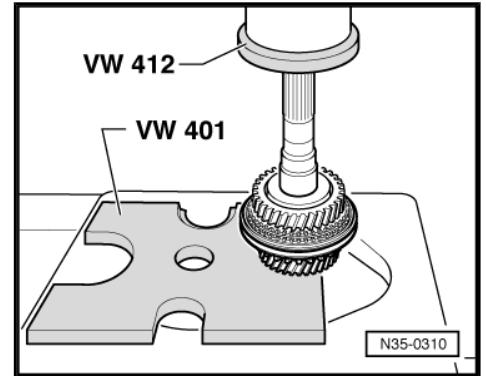
Removing circlip -1- from groove

A - Protective glove



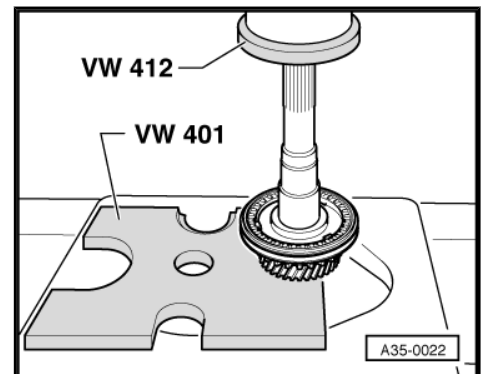
WARNING

Prevent circlip from springing off suddenly.



Pressing off locking collar with synchronising hub for 3rd and 4th gear

- After removing the circlip, press off 3rd speed selector gear and locking collar/synchronising hub together.

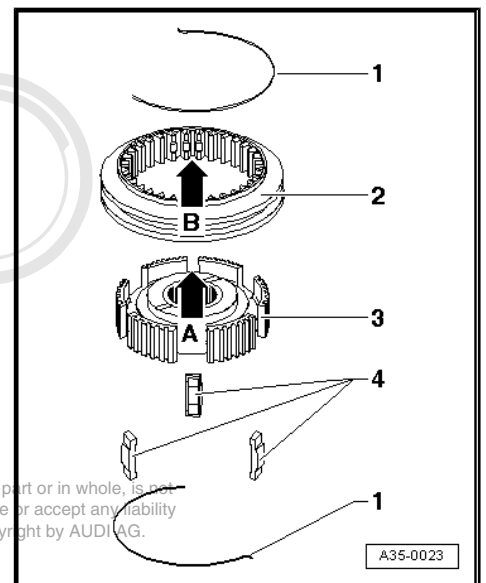


Dismantling and assembling 3rd and 4th gear locking collar and synchronising hub

- 1 - Spring
- 2 - Locking collar
- 3 - Synchronising hub
- 4 - Locking piece

- Push locking collar over synchronising hub.

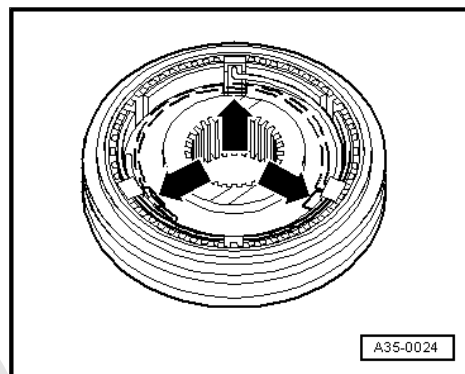
The deeper recesses -arrow A- for the locking pieces in the synchronising hub must align with the recesses -arrow B- in the locking collar.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

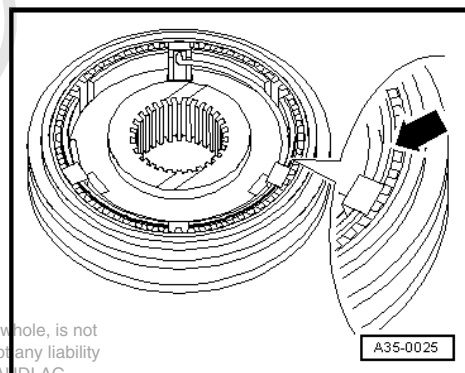
Assembling 3rd and 4th gear locking collar/synchronising hub

- Locking collar is pushed over synchronising hub.
- Insert locking pieces in the deeper slots -arrows- and install springs off-set by 120°. Angled end of spring must locate in hollow locking piece.



Installation position of 3rd and 4th gear locking collar/synchronising hub

The groove on the top -arrow- points towards 4th gear.

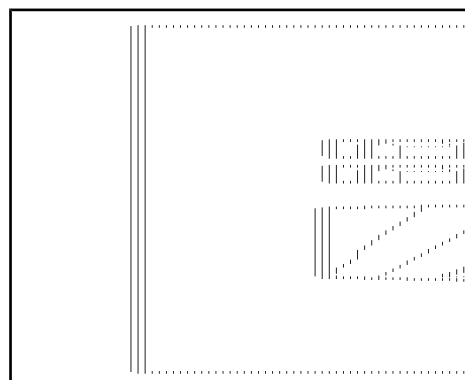


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG

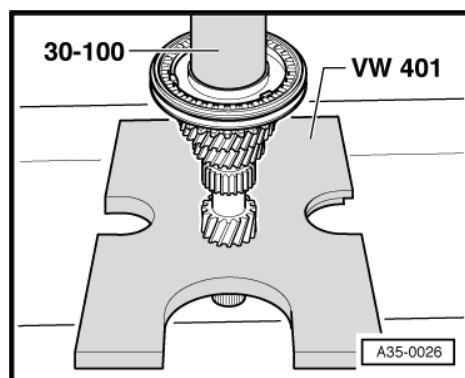
Checking synchro-ring for wear

- Press synchro-ring onto tapered seat on selector gear and measure gap -a- with a feeler gauge.

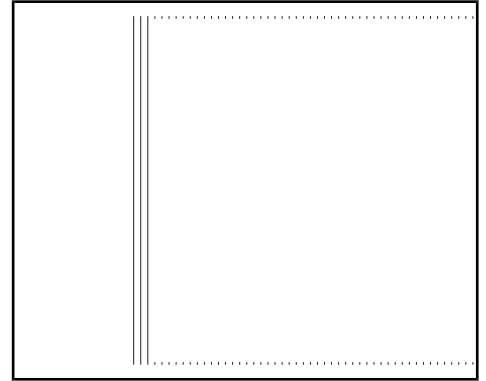
Gap -a-	Installation depth	Wear limit
3rd, 4th and 5th gear	1.1 ... 1.7 mm	0.5 mm



Pressing on 3rd and 4th gear synchronising hub with locking collar

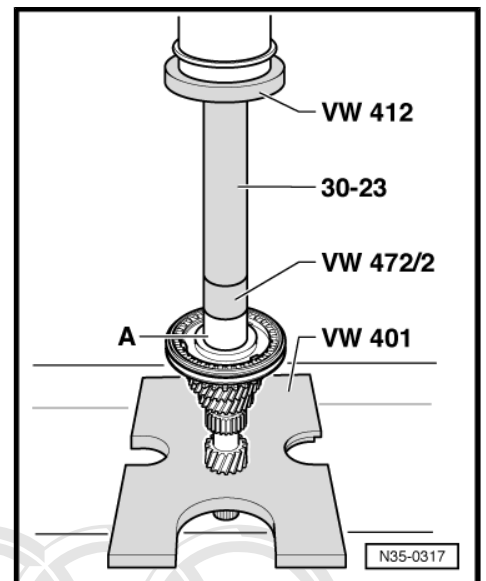


Inserting circlip

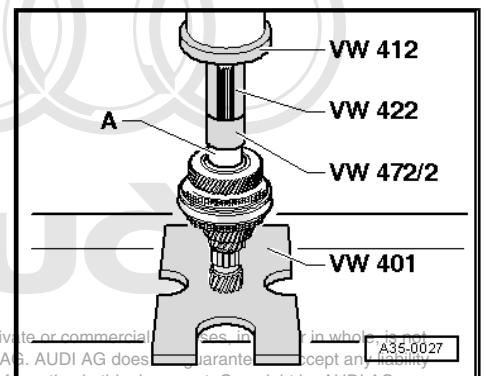


From gearbox build date 07.01: Pressing on sleeve -A- for 4th gear needle bearing

- After pressing on sleeve -A-, install 4th gear needle bearing with selector gear for 4th gear and thrust washer.



Pressing on roller bearing inner race -A-



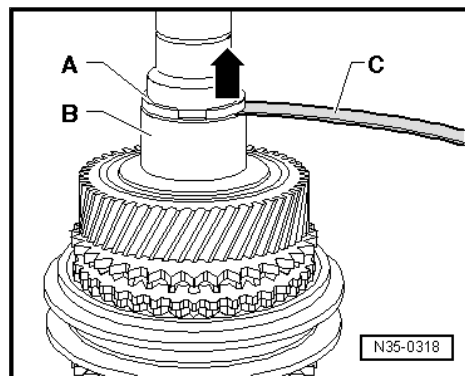
Protected by copyright. Copying for private or commercial use is not permitted unless authorised by AUDI AG. AUDI AG does not accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Determining thickness of circlip

- Insert a 2.0 mm thick circlip -A- in groove of input shaft and press upwards -arrow-.
- Measure gap between inner race -B- and fitted circlip -A- using feeler gauge -C-.
- Remove circlip fitted for measurement.
- Select circlip from table.

The following circlips are available:

Measured value (mm)	Circlip thickness (mm)	Axial clearance (mm)
0.05...0.10	2.0	0.05...0.15
0.15...0.20	2.1	0.05...0.15
0.25...0.30	2.2	0.05...0.15
0.35...0.40	2.3	0.05...0.15
0.45...0.50	2.4	0.05...0.10

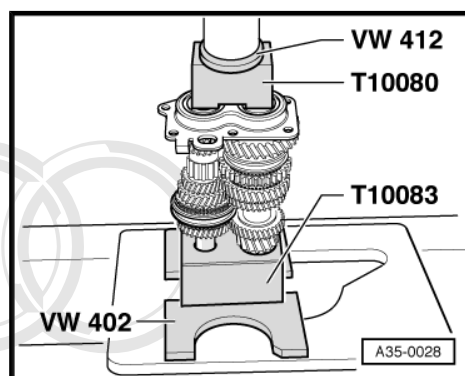


Note

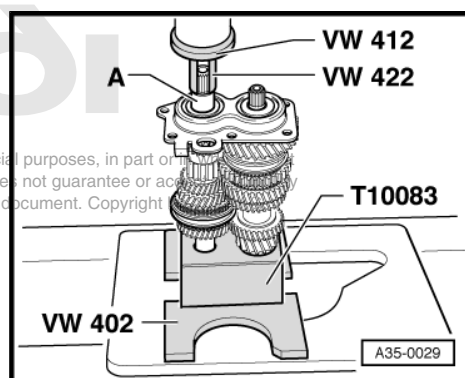
Select locking pieces from ⇒ *Electronic parts catalogue* .

Pressing on bearing mounting with grooved ball bearing

- Heat bearing mounting to approx. 100°C before pressing on.



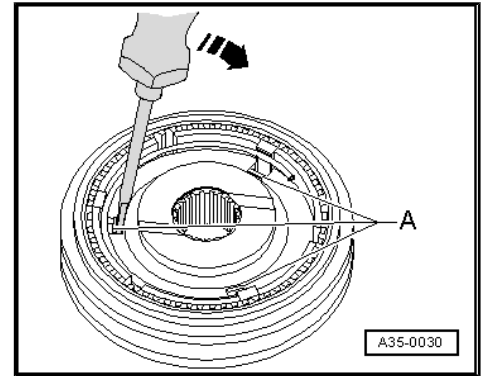
Pressing on sleeve -A- for 5th gear needle roller bearing



Protected by copyright. Copying for private or commercial purposes, in part or in full, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright

Detaching check ring

- Unclip hooks -A- of check ring from synchronising hub using a screwdriver.



Dismantling and assembling 5th gear locking collar and synchronising hub

- 1 - Spring
- 2 - Locking piece
- 3 - Synchronising hub

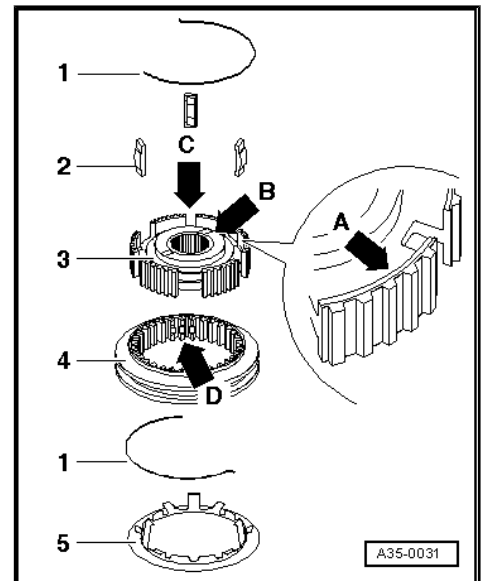
- Installation position: the groove on the top -arrow A- and the wide collar -arrow B- face the 5th gear

- 4 - Locking collar

- 5 - Check ring

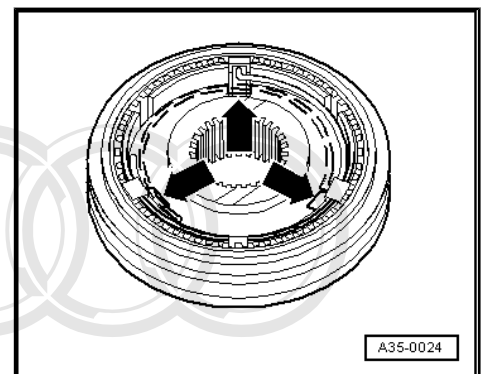
- Push locking collar over synchronising hub.

The deeper recesses -arrow C- for the locking pieces in the synchronising hub must align with the recesses -arrow D- in the locking collar.



Assembling 5th gear locking collar/synchronising hub

- Locking collar is pushed over synchronising hub.
- Insert locking pieces in the deeper recesses -arrows- and install springs 120° off-set. Angled end of spring must locate in hollow locking piece.



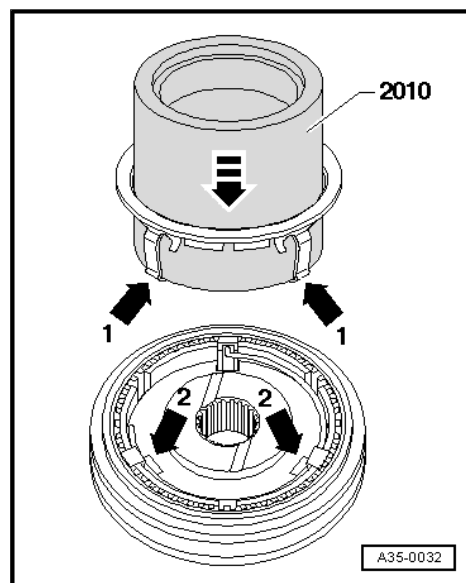
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Installing check ring

- Push check ring onto tube -2010- .
- Insert check ring together with tube -2010- into 5th gear synchronising hub/locking collar (observe installation position ⇒ [page 95](#)).

Hooks -arrow 1- engage in slots -arrow 2- for locking pieces in synchronising hub.

- Push check ring downwards until hooks engage.

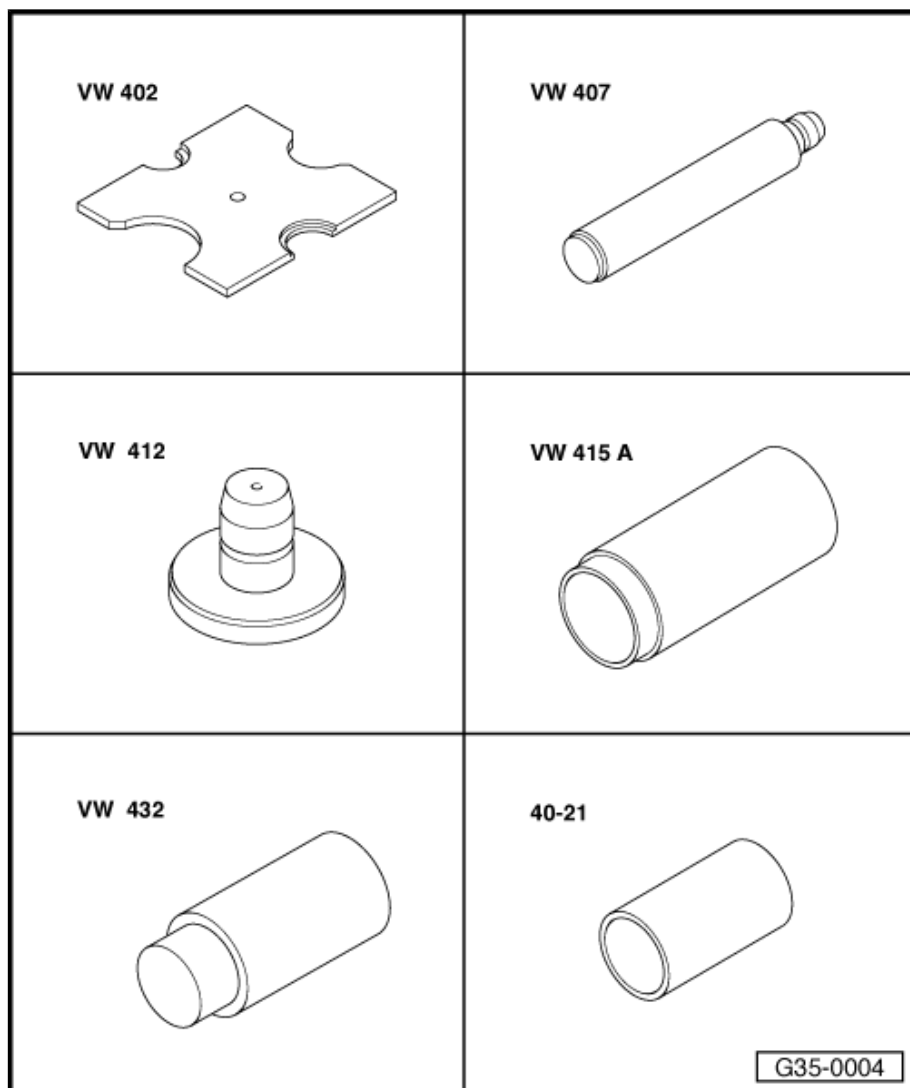


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

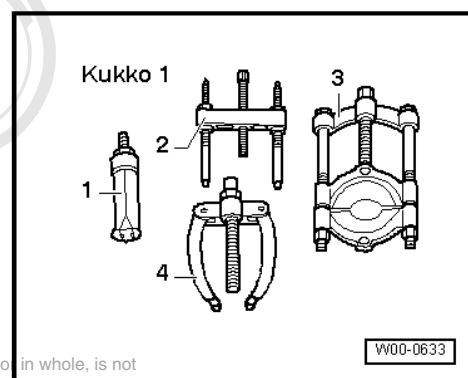
2 Dismantling and assembling output shaft

Special tools and workshop equipment required

- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 407-
- ◆ Press tool -VW 412-
- ◆ Tube -VW 415 A-
- ◆ Press tool -VW 432-
- ◆ Drift sleeve -40 - 21-



- ◆ -1- Internal puller 30...37 mm , e.g. -Kukko 21/5-



- ◆ -4- Counter support , e.g. -Kukko 22/1-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.



Note

- ◆ Refer to technical data ⇒ [page 1](#) when installing new gears or a new output shaft.
- ◆ Lubricate all bearings, selector gears and synchro-rings on output shaft with gear oil before installing.
- ◆ Do not interchange synchro-rings. When re-using synchro-rings, always fit on the same selector gear.

1 - Clutch housing

2 - Roller bearing

- ☐ With circlip
- ☐ Pulling out ⇒ [page 100](#)
- ☐ Pressing in ⇒ [page 100](#)
- ☐ Installation position: the circlip in the bearing faces the output shaft

3 - Output shaft

- ☐ If an inner race has been fitted as bearing seat for roller bearing ⇒ [Item 2 \(page 98\)](#), it is not possible to detach it from output shaft.
- ☐ Check bearing seat / roller bearing inner race for scoring or other damage.
- ☐ If you detect scoring or other damage to the bearing seat / inner race, renew both output shaft and roller bearing.

4 - 4th gear wheel

- ☐ Installation position: Collar faces 3rd gear ⇒ [page 101](#)

5 - Circlip

6 - Circlip

7 - 3rd gear wheel

- ☐ Installation position: Collar faces 4th gear ⇒ [page 101](#)

8 - Circlip

9 - 2nd speed selector gear

10 - Needle bearing

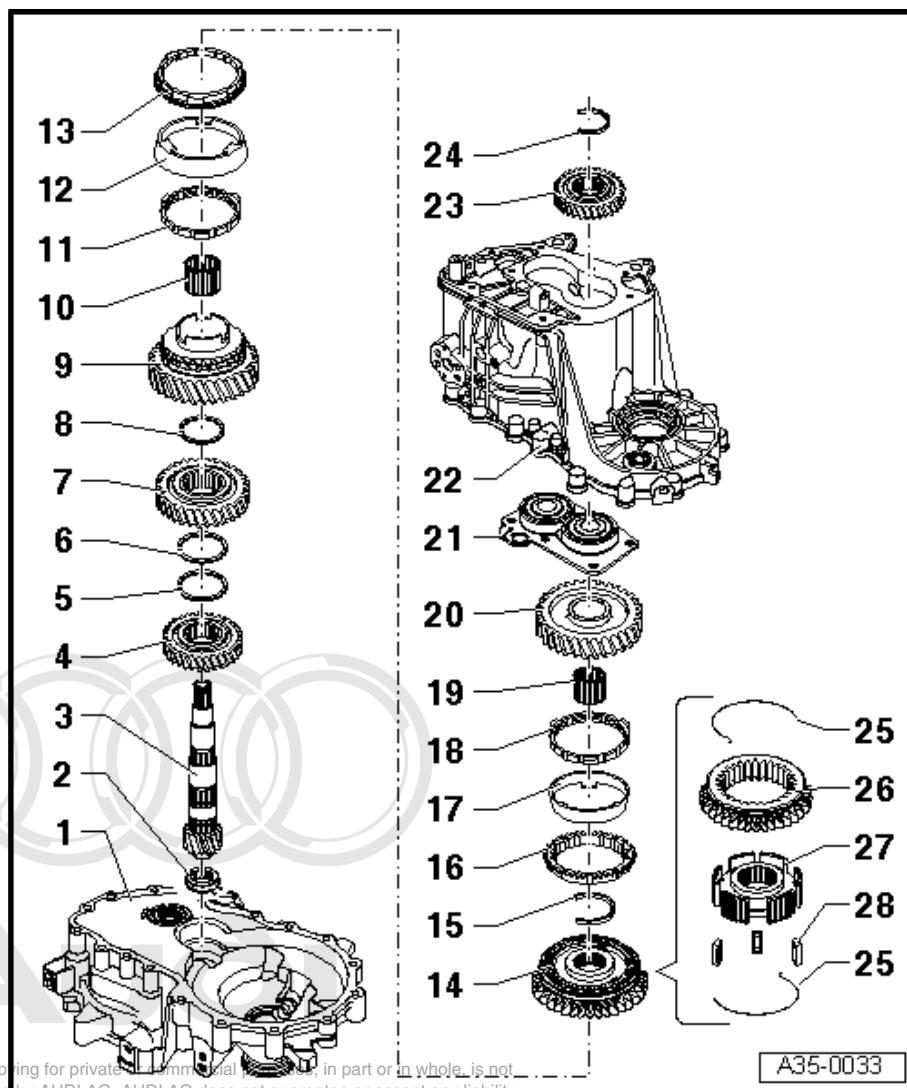
- ☐ For 2nd gear

11 - Inner ring for 2nd gear

- ☐ Checking for wear ⇒ [page 101](#)
- ☐ Installation position ⇒ [page 101](#)

12 - Outer ring for 2nd gear

- ☐ Fit on inner ring ⇒ [Item 11 \(page 98\)](#)
- ☐ Renew if scored or if there are visible traces of wear



A35-0033

- ☐ Installation position ⇒ [page 101](#)

13 - 2nd gear synchro-ring

- ☐ Checking for wear ⇒ [page 101](#)
- ☐ Installation position ⇒ [page 101](#)

14 - Locking collar with synchronising hub for 1st and 2nd gear

- ☐ Press off together with 2nd speed selector gear after removing circlip ⇒ [Item 15 \(page 99\)](#) ⇒ [page 100](#)
- ☐ Dismantling ⇒ [page 102](#)
- ☐ Assembling locking collar/synchronising hub ⇒ [page 102](#) and ⇒ [page 102](#)
- ☐ Installation position ⇒ [page 102](#)
- ☐ Pressing on ⇒ [page 102](#)

15 - Circlip

- ☐ Pressing out ⇒ [page 100](#)
- ☐ Fitting ⇒ [page 103](#)

16 - 1st gear synchro-ring

- ☐ Checking for wear ⇒ [page 101](#)
- ☐ Assemble so that the recesses engage on the locking pieces on the locking collar ⇒ [Item 14 \(page 99\)](#)

17 - Outer ring for 1st gear

- ☐ Insert in synchro-ring ⇒ [Item 16 \(page 99\)](#) ; installation position ⇒ [page 103](#)
- ☐ Renew if scored or if there are visible traces of wear

18 - Inner ring for 1st gear

- ☐ Checking for wear ⇒ [page 101](#)
- ☐ Check lugs for scoring
- ☐ Installation position ⇒ [page 103](#)

19 - Needle bearing

- ☐ For 1st gear

20 - 1st speed selector gear

- ☐ Installation position ⇒ [page 103](#)
- Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

21 - Bearing mounting with grooved ball bearings

- ☐ Only renew grooved ball bearings together with bearing mounting.
- ☐ If bearing mounting is separated from gearbox housing, it must always be renewed
- ☐ Pressing off ⇒ [page 90](#)
- ☐ Pressing on ⇒ [page 94](#)

22 - Gearbox housing

23 - 5th gear wheel

- ☐ Installation position: Collar faces gearbox housing cover ⇒ [Page](#) ⇒ [page 70](#)

24 - Circlip

- ☐ Always renew
- ☐ Determining thickness ⇒ [page 71](#)

25 - Spring

- ☐ Installation position ⇒ [page 102](#)

26 - Locking collar

27 - Synchronising hub

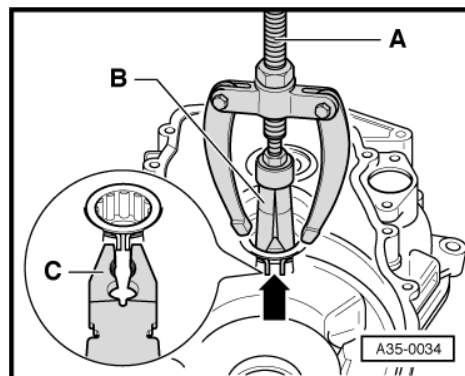
28 - Locking pieces (3x)

Pulling roller bearing out of clutch housing

- When pulling out, compress circlip -arrow- for roller bearing using pliers -C-.

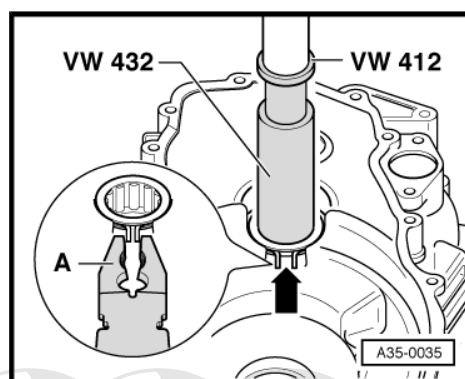
A - Counter-support , e.g. -Kukko 22/1-

B - Internal puller 30 ... 37 mm , e.g. -Kukko 21/5-



Pressing roller bearing into clutch housing

- Support clutch housing using tube -VW 415 A- (not visible in diagram) directly under bearing mounting.
- When pressing in, compress circlip -arrow- for roller bearing using pliers -A-.
- Remove the pliers before the roller bearing is in its final position. The circlip must engage in the groove in the clutch housing.



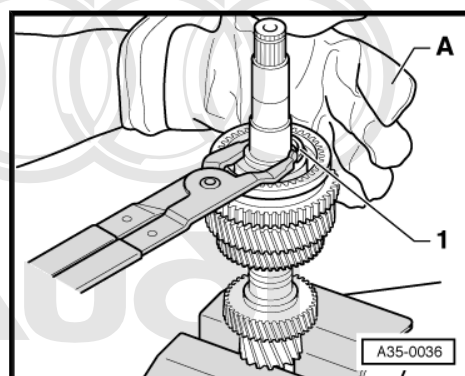
Removing circlip -1- from groove

A - Protective glove



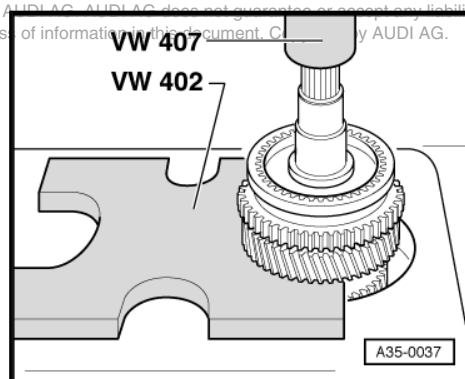
WARNING

Prevent circlip from springing off suddenly.



Pressing off 1st and 2nd gear locking collar/synchronising hub

- After removing the circlip, press off 2nd speed selector gear and locking collar/synchronising hub together.



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for the correctness of information in this document. Copyright © 2008 by AUDI AG.

Installation position of 3rd and 4th gear wheel

- Fit 4th gear wheel -A- onto output shaft.

Installation position:

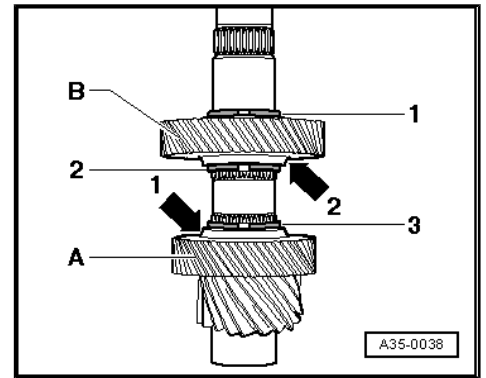
Collar -arrow 1- faces 3rd gear wheel -B-.

- Fit circlips -2- and -3-.
- Fit 3rd gear wheel -B- onto output shaft.

Installation position:

Collar -arrow 2- faces 4th gear wheel -A-.

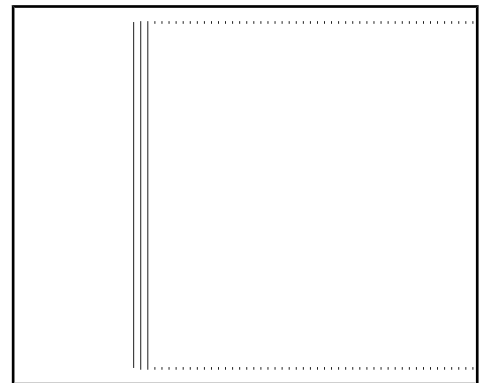
- Fit circlip -1-.



Checking 1st and 2nd gear inner ring for wear

- Press inner ring onto tapered seat on selector gear and measure gap -a- using a feeler gauge.

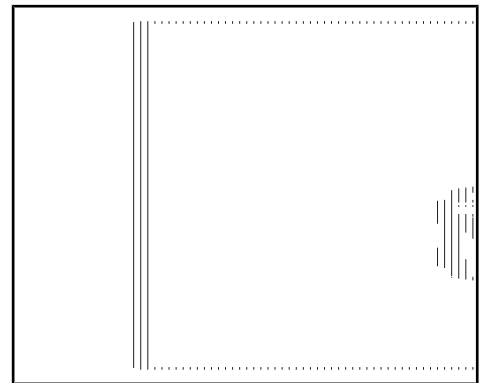
Gap -a-	Installation depth	Wear limit
1st and 2nd gear	0.75 ... 1.25 mm	0.3 mm



Checking 1st and 2nd gear synchro-ring for wear

- Press synchro-ring, outer ring and inner ring onto tapered seat on selector gear and measure gap -a- using a feeler gauge.

Gap -a-	Installation depth	Wear limit
1st and 2nd gear	1.2 ... 1.8 mm	0.5 mm



Installation position of outer ring, inner ring and synchro-ring of 2nd gear

- Place inner ring -A- on 2nd speed selector gear.

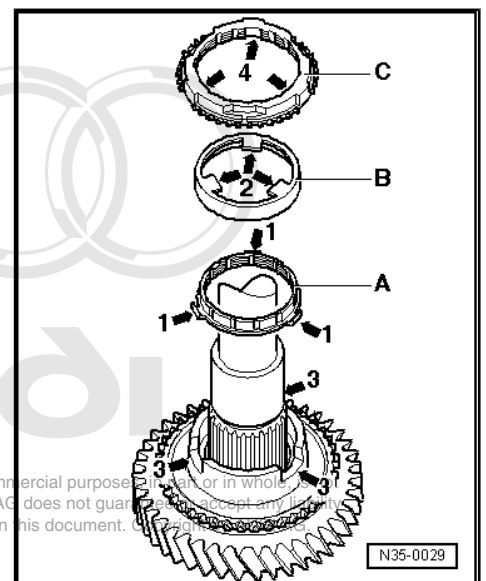
The angled tabs -arrow 1- point towards the outer ring -B-.

- Fit outer ring -B-.

The tabs -arrow 2- lock in the recesses -arrow 3- of the selector gear.

- Fit synchro-ring -C-.

The recesses -arrow 4- locate on the tabs -arrow 1- of the inner ring -A-.



Protected by copyright. Copying for private or commercial purposes in whole or in part is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee the accuracy of the information with respect to the correctness of information in this document.

Dismantling and assembling 1st and 2nd gear locking collar and synchronising hub

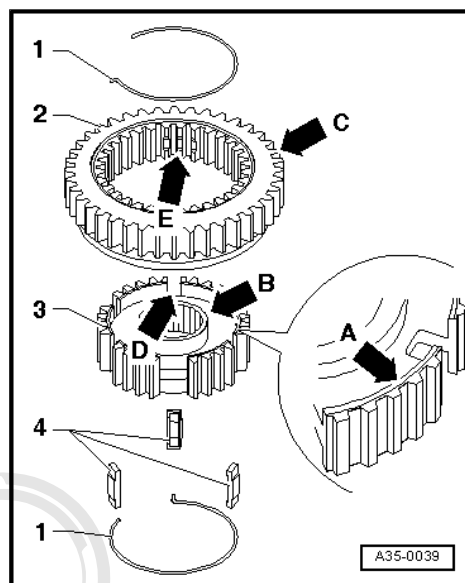
- 1 - Spring
- 2 - Locking collar
- 3 - Synchronising hub
- 4 - Locking piece

– Push locking collar over synchronising hub.

Installation position:

After assembly, the groove on the top -arrow A- and the higher shoulder -arrow B- on the synchronising hub will face towards the external splines on the locking collar -arrow C-.

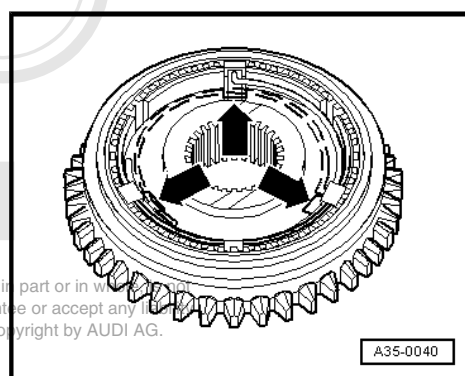
The deeper recesses -arrow D- for the locking pieces in the synchronising hub must align with the recesses -arrow E- in the locking collar.



Assembling 1st and 2nd gear locking collar/synchronising hub

- Locking collar is pushed over synchronising hub.
- Insert locking pieces in deeper recesses -arrows- and install springs so they are offset 120°. Angled end of spring must locate in hollow locking piece.

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

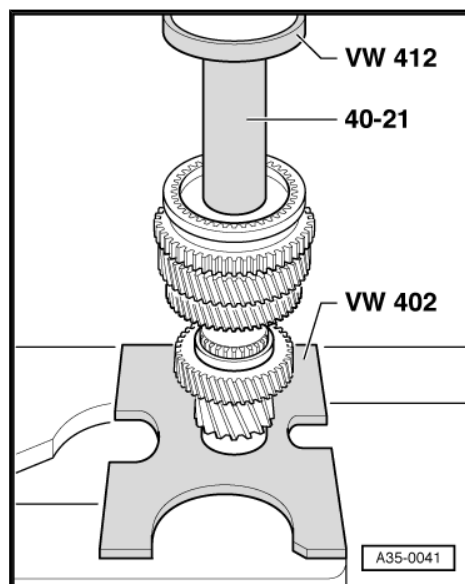


Pressing on 1st and 2nd gear locking collar/synchronising hub

Installation position:

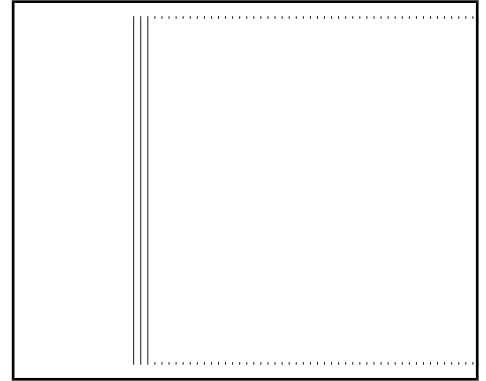
Groove for selector fork in locking collar points towards 1st gear; reverse gear splines point towards 2nd gear.

- Turn synchro-ring so that grooves align with locking pieces.



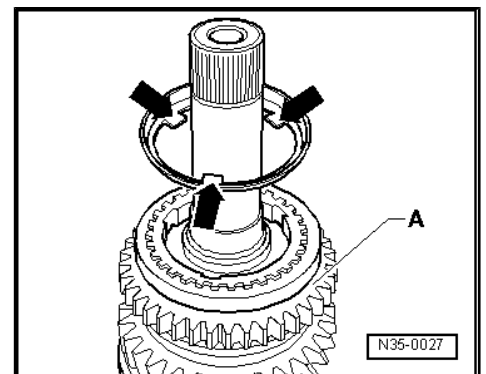
Inserting circlip

- Fit 1st gear synchro-ring in locking collar/synchronising hub.



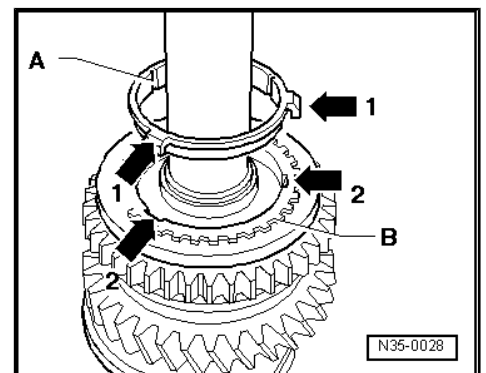
Installation position of outer ring for 1st gear

The lugs -arrows- face the gear teeth of the reverse gear



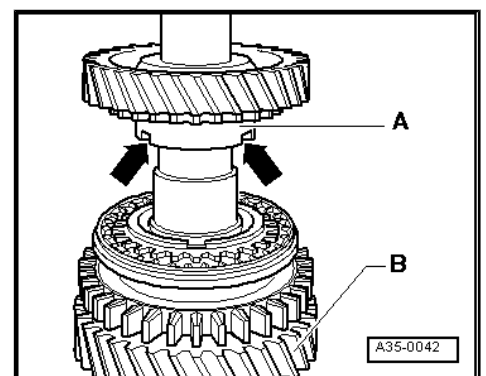
Installation position of 1st gear inner ring -A-

The lugs -arrow 1- locate in the recesses -arrow 2- in the synchro-ring -B-.



Installation position of 1st speed selector gear

The higher shoulder -A- faces towards 2nd gear -B-. The recesses in the collar -arrows- locate with the tabs of the outer ring (arrow ⇒ [page 103](#)).



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

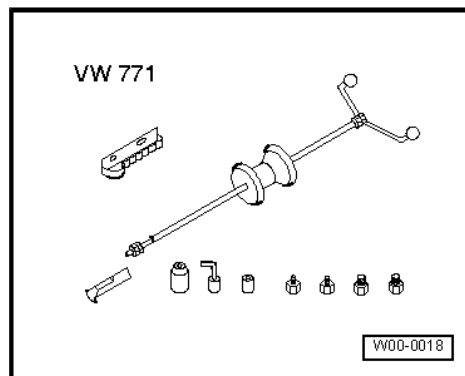
39 – Final drive - differential

1 Renewing flange shaft oil seals with gearbox installed

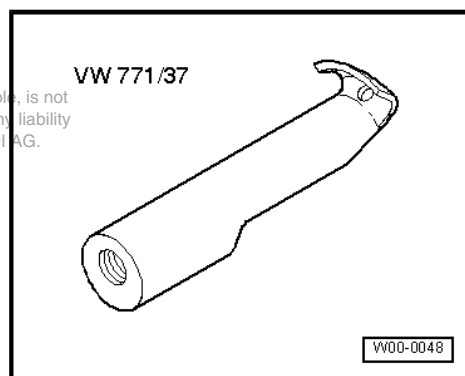
1.1 Renewing flange shaft oil seal (left-side)

Special tools and workshop equipment required

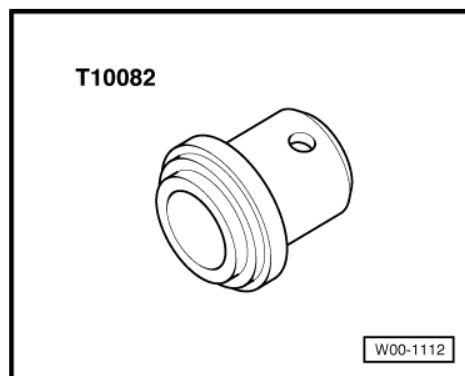
- ◆ Multi-purpose tool -VW 771-



- ◆ Extractor hook -VW 771/37-



- ◆ Thrust piece -T10082-



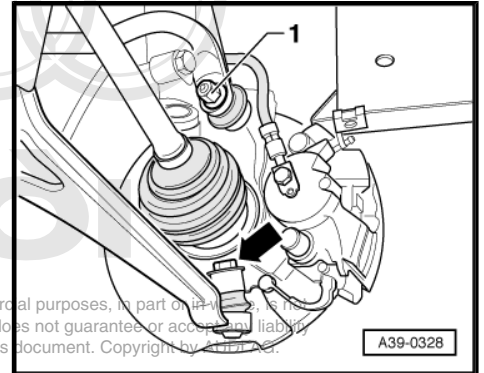
- ◆ Drip tray
- ◆ Sealing grease -G 052 128 A1-

Removing

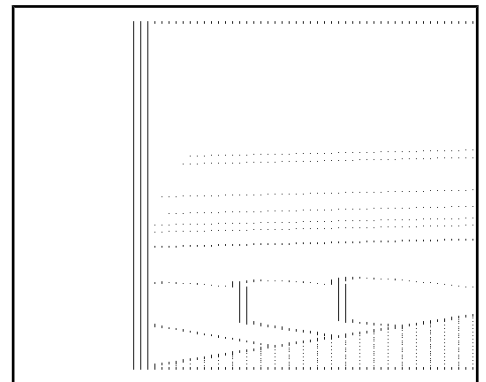
- Remove left wheel.
- Remove noise insulation.
- Remove wheel housing liner from wheel housing (left-side).

- Turn steering to the left.
- Unbolt drive shaft from flange shaft.
- Release coupling rod (left-side) -1- from anti-roll bar.
- Detach suspension link (left-side) from wheel bearing housing -arrow- ⇒ Rep. Gr. 40 .
- Swivel wheel bearing housing outwards.
- Guide drive shaft (left-side) out between subframe and gearbox.
- Guide drive shaft into the wheel housing and secure to suspension strut e.g. with wire or similar.

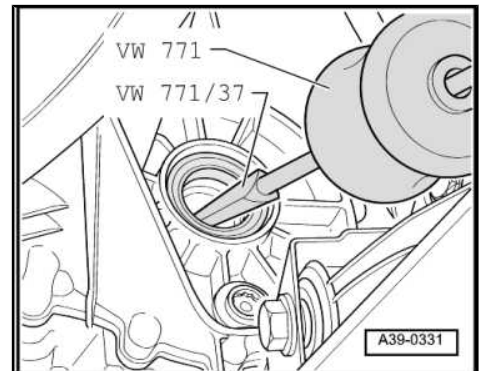
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by Audi AG.



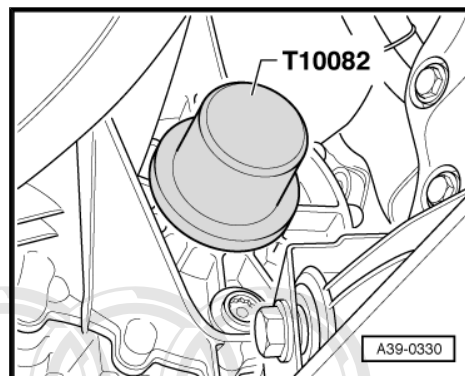
- Remove flange shaft securing bolt. To do this, screw two bolts into flange and counterhold flange shaft with tyre iron or other suitable lever.
- Place drip tray under the gearbox.
- Pull out flange shaft and spring.
- Pull out flange shaft oil seal using multi-purpose tool -VW 771- and puller hook -VW 771/37- .



Installing



- Drive in new seal onto stop (take care to keep seal straight).
- Pack space between sealing lip and dust lip half-full with sealing grease -G 052 128 A1- .
- Install flange shaft.
- Secure flange shaft with countersunk bolt.
- Secure coupling rod to anti-roll bar and suspension link to wheel bearing housing ⇒ Rep. Gr. 40 .
- Bolt drive shaft (left-side) to flange shaft ⇒ Rep. Gr. 40 .
- Install wheel housing liner in wheel housing ⇒ Rep. Gr. 66 .
- Fit wheel ⇒ Rep. Gr. 44 .
- Check gearbox oil. If necessary, top up to bottom lip of filler hole ⇒ [page 57](#) .
- Install noise insulation ⇒ Rep. Gr. 50 .



Tightening torque

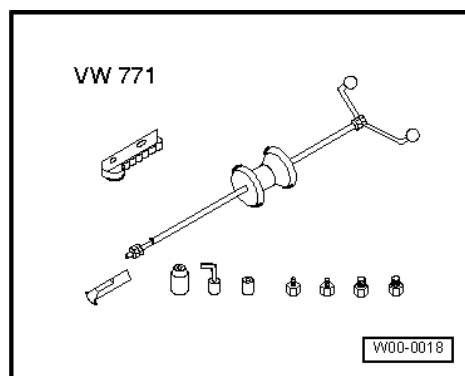
Flange shaft to gearbox (countersunk bolt) 25 Nm

1.2 Renewing flange shaft oil seal (right-side)

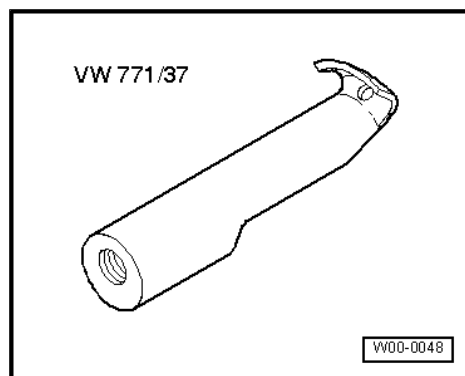
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Special tools and workshop equipment required

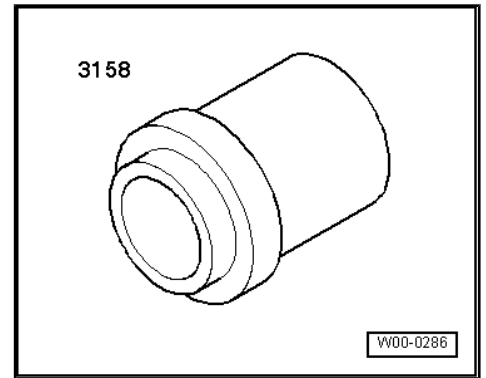
- ◆ Multi-purpose tool -VW 771-



- ◆ Extractor hook -VW 771/37-



◆ Drift sleeve -3158-



◆ Drip tray

◆ Sealing grease -G 052 128 A1-

Removing

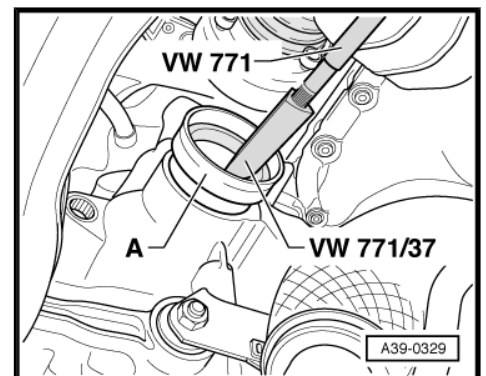
- Remove noise insulation.
- Detach heat shield from pendulum support.
- Turn steering to full right lock.
- Unbolt drive shaft from flange shaft.
- Tie-up drive shaft as high as possible. Do not damage paint on drive shaft.
- Remove flange shaft securing bolt. To do this, screw two bolts into flange and counterhold flange shaft with tyre iron or other suitable lever.
- Place drip tray under the gearbox.
- Pull out flange shaft and spring.
- Pull out flange shaft oil seal.



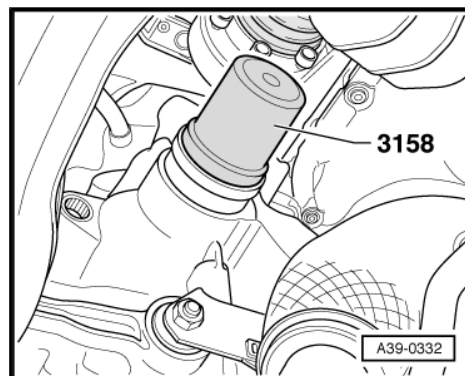
Note

- ◆ Do not damage sleeve -A-, otherwise leaks will occur.
- ◆ Renew sleeve if damaged ⇒ [page 76](#)

Installing



- Drive in new seal onto stop (take care to keep seal straight).
- Pack space between sealing lip and dust lip half-full with sealing grease -G 052 128 A1- .
- Install flange shaft.
- Secure flange shaft with countersunk bolt.
- Bolt drive shaft (right-side) to flange shaft ⇒ Rep. Gr. 40 .
- Attach heat shield to pendulum support.
- Check gearbox oil. If necessary, top up to bottom lip of filler hole ⇒ [page 57](#) .
- Install noise insulation.



Tightening torques

Flange shaft to gearbox (countersunk bolt)	25 Nm
Protective plate to pendulum support	23 Nm

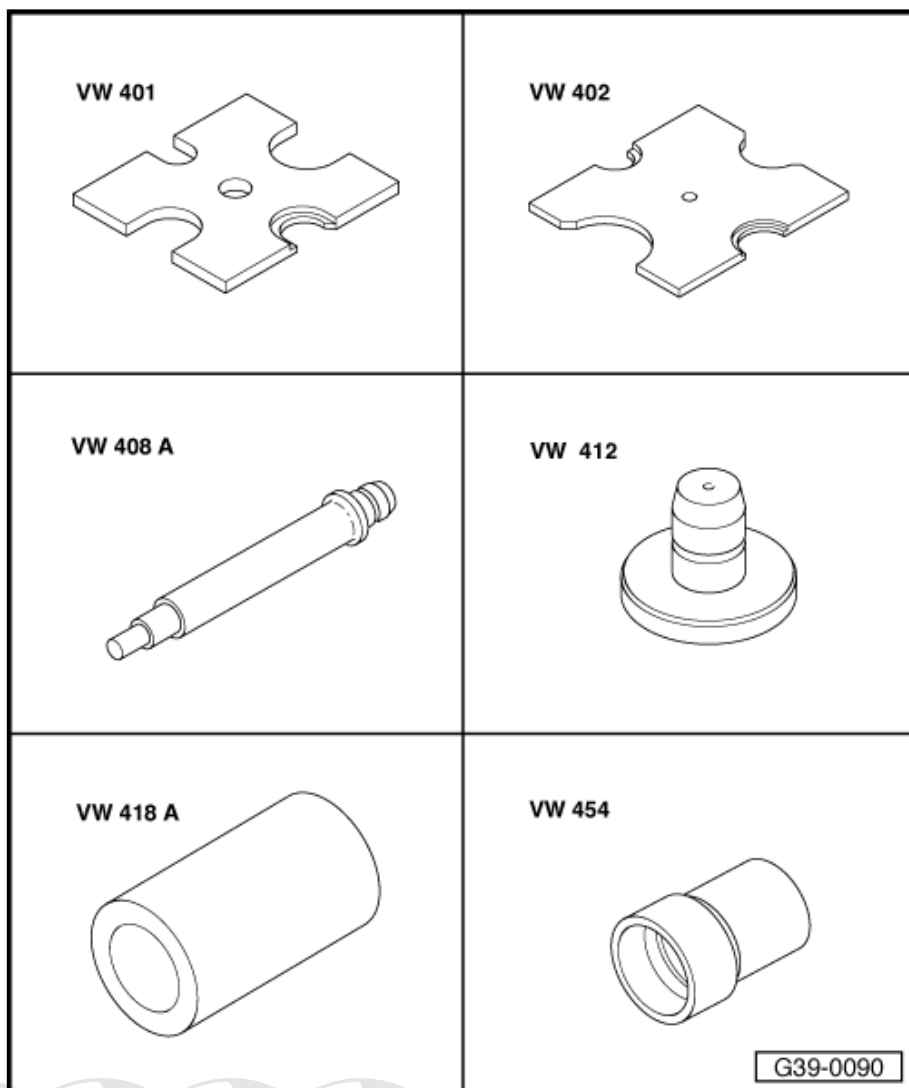


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

2 Dismantling and assembling differential

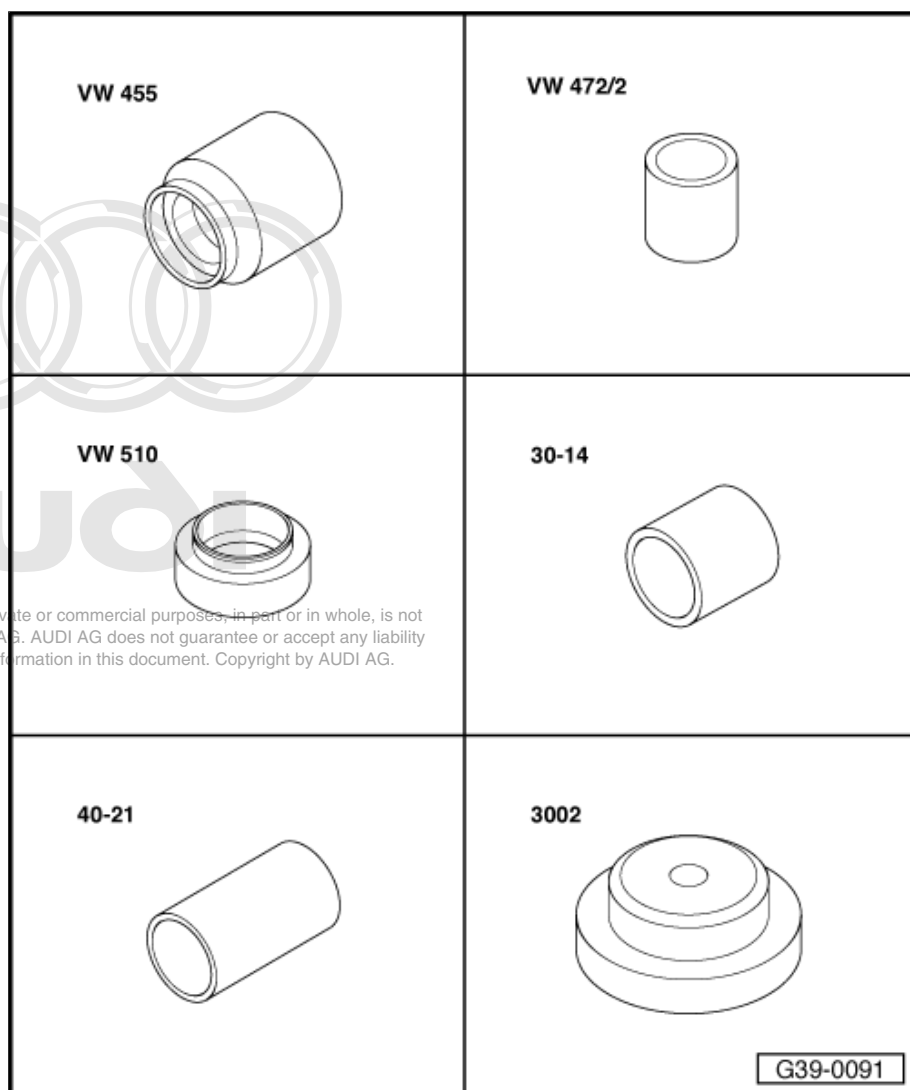
Special tools and workshop equipment required

- ◆ Thrust plate -VW 401-
- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 408 A-
- ◆ Press tool -VW 412-
- ◆ Tube -VW 418 A-
- ◆ Press tool -VW 454-



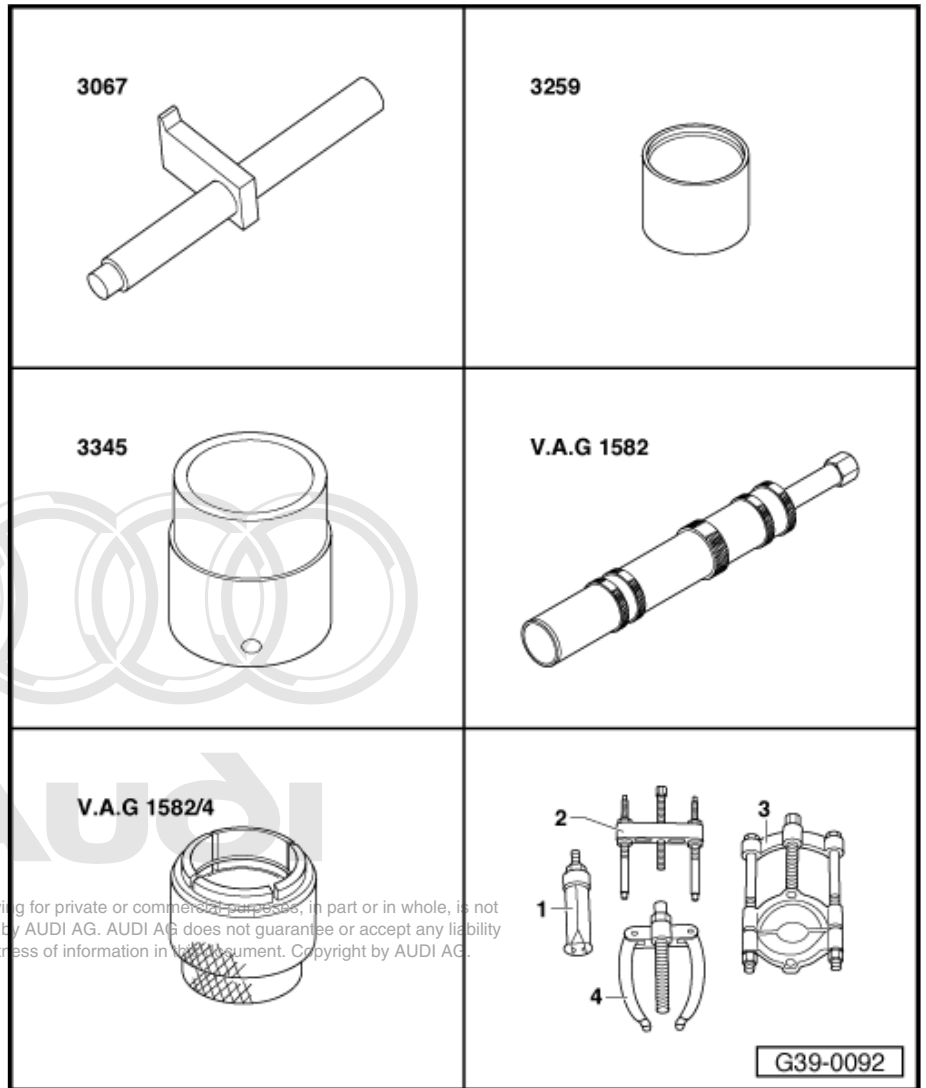
Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ◆ Installing sleeve -VW 455-
- ◆ Spacer sleeve -VW 472/2-
- ◆ Thrust pad -VW 510-
- ◆ Tube -30 - 14-
- ◆ Press tool -40 - 21-
- ◆ Thrust piece -3002-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ◆ Counterhold tool -3067-
- ◆ Tube -3259-
- ◆ Wheel bearing tube -3345-
- ◆ Tapered roller bearing puller -V.A.G 1582-
- ◆ Adapter -V.A.G 1582/4-
- ◆ -1- Internal puller 46...58 mm , e.g. -Kukko 21/7-
- ◆ -4- Counter support , e.g. -Kukko 22/2-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

Note

- ◆ Heat tapered roller bearing inner race to 100° C before installing.
- ◆ Always renew both tapered roller bearings together.
- ◆ Items 14, 15/16, 17 and 23 were modified from gearbox build date 06 05 2 ⇒ [page 115](#) . Select correct components from ⇒ *Electronic parts catalogue* .
- ◆ Adjust differential if tapered roller bearings, differential cage, gearbox housing or clutch housing are renewed ⇒ [page 121](#) .

1 - Countersunk bolt

- ☐ 25 Nm
- ☐ Screws into threaded piece
⇒ [Item 8 \(page 112\)](#)

2 - Flange shaft (right-side)

- ☐ Do not interchange; left and right flange shafts are different

3 - Spring for flange shaft

- ☐ Installed behind flange shafts

4 - Thrust washer

- ☐ Installation position: lip faces spring

5 - Tapered ring

- ☐ Installation position: Taper towards differential cage

6 - Circlip

- ☐ Holds tapered ring, thrust washer and spring in position when flange shaft is removed

7 - Sun wheel

- ☐ Installing ⇒ [page 115](#)

8 - Threaded piece

- ☐ Installing ⇒ [page 115](#)

9 - Differential pinion pin

- ☐ To remove, shear off spring pin
⇒ [Item 18 \(page 113\)](#)
⇒ [page 115](#)
- ☐ Installing ⇒ [page 115](#)

10 - Planet pinion

- ☐ Installing ⇒ [page 115](#)

11 - One-piece thrust washer

- ☐ Modified on some gearbox versions ⇒ [page 115](#)
- ☐ Lubricate with gear oil before installing
- ☐ For correct version, refer to ⇒ Electronic parts catalogue

12 - Flange shaft (left-side)

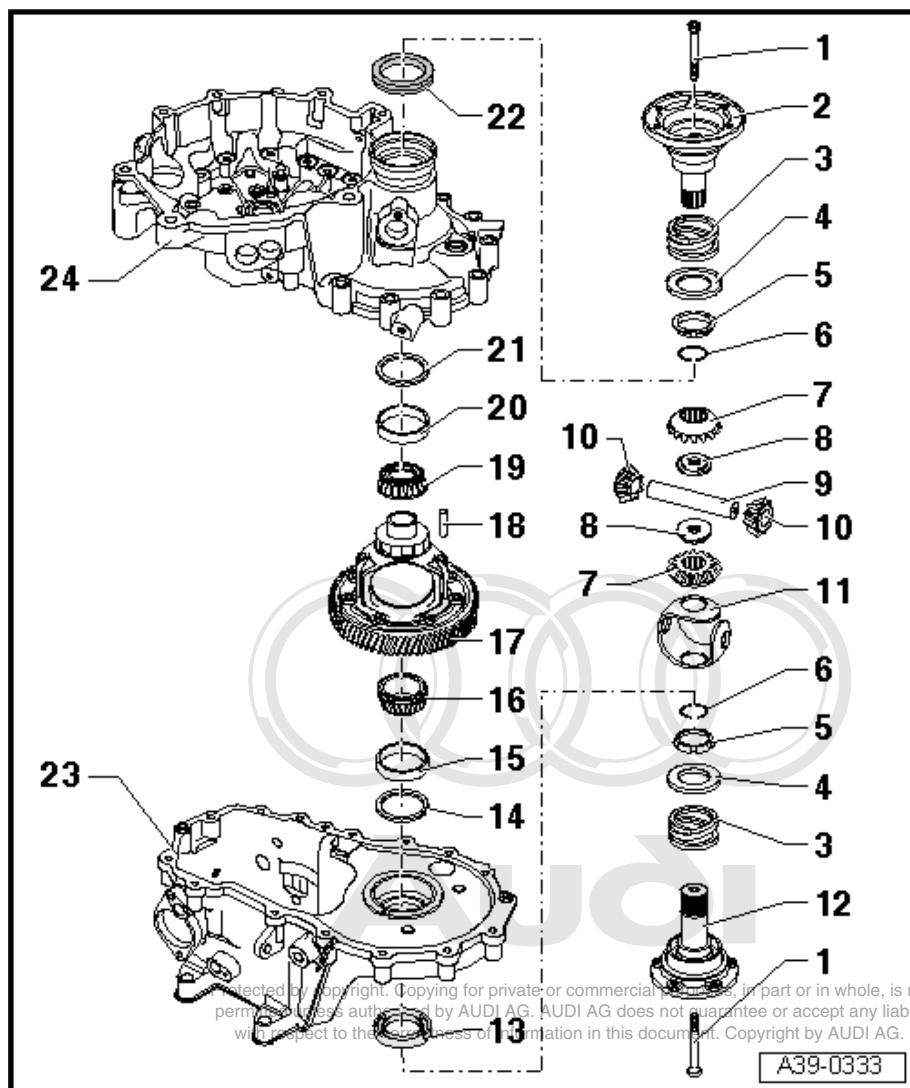
- ☐ With dust plate
- ☐ Do not interchange; left and right flange shafts are different

13 - Flange shaft oil seal (left-side)

- ☐ Different diameters for left and right
- ☐ Renewing with gearbox installed ⇒ [page 104](#)

14 - Shim S₁

- ☐ For differential
- ☐ Always 1 mm thick
- ☐ Modification: adapted to enlarged tapered roller bearing on gearbox housing side ⇒ [page 115](#)
- ☐ For correct version, refer to ⇒ Electronic parts catalogue



15 - Tapered roller bearing outer race

- ☐ Pulling out ⇒ [page 113](#)
- ☐ Pressing in ⇒ [page 114](#)
- ☐ Modification: enlarged from gearbox build date 06 05 2 ⇒ [page 115](#)
- ☐ For correct version, refer to ⇒ Electronic parts catalogue

16 - Tapered roller bearing inner race

- ☐ Pulling off ⇒ [page 114](#)
- ☐ Pressing on ⇒ [page 114](#)
- ☐ Modification: enlarged from gearbox build date 06 05 2 ⇒ [page 115](#)
- ☐ For correct version, refer to ⇒ Electronic parts catalogue

17 - Differential cage

- ☐ With final drive gear
- ☐ Modification: adapted to enlarged tapered roller bearing on gearbox housing side ⇒ [page 115](#)
- ☐ For correct version, refer to ⇒ Electronic parts catalogue

18 - Spring pin

- ☐ For securing differential pinion pin
- ☐ Is sheared off on removal ⇒ [page 115](#)
- ☐ Installing ⇒ [page 115](#)

19 - Tapered roller bearing inner race

- ☐ Pulling off ⇒ [page 114](#)
- ☐ Pressing on ⇒ [page 114](#)

20 - Tapered roller bearing outer race

- ☐ Pressing out ⇒ [page 114](#)
- ☐ Pressing in ⇒ [page 115](#)

21 - Shim S₂

- ☐ For differential
- ☐ Determining thickness ⇒ [page 121](#)

22 - Oil seal

- ☐ For flange shaft (right-side)
- ☐ Different diameters for left and right
- ☐ Renewing with gearbox installed ⇒ [page 106](#)

23 - Gearbox housing

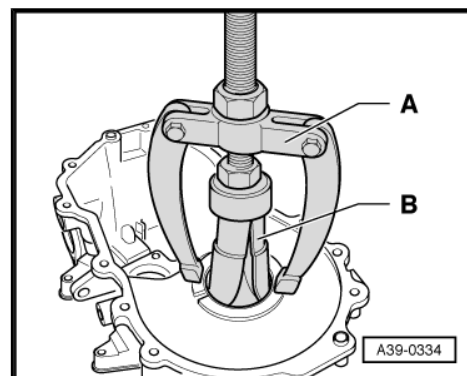
- ☐ Modification from gearbox build date 06 05 2: enlarged bearing seat for tapered roller bearing/differential ⇒ [page 115](#)
- ☐ For correct version, refer to ⇒ Electronic parts catalogue

24 - Clutch housing

Pulling outer race for tapered roller bearing out of gearbox housing

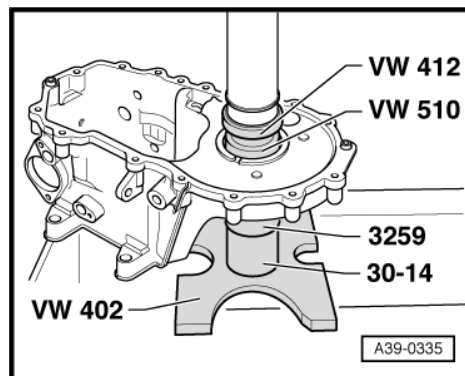
A - Counter-support , e.g. -Kukko 22/2-

B - Internal puller 46 ... 58 mm , e.g. -Kukko 21/7-



Pressing outer race for tapered roller bearing into gearbox housing

- Fit shim S₁, always 1 mm thick, under outer race.
- Support gearbox housing with tube -3259- directly below bearing mounting.



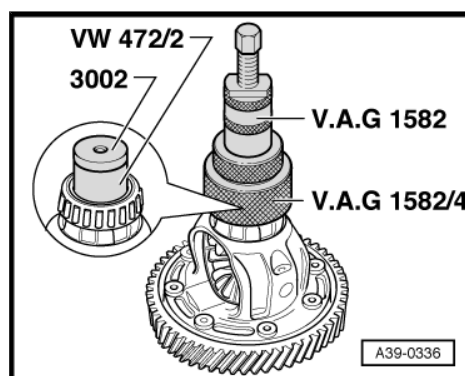
Pulling off tapered roller bearing inner races

- Before fitting puller, position spacer sleeve -VW 472/2- and thrust piece -3002- on differential cage.



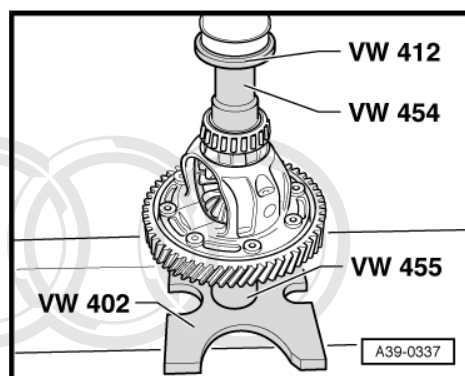
Note

The procedure for pulling tapered roller bearing inner races off differential cage is the same for both bearings.



Pressing on tapered roller bearing inner races

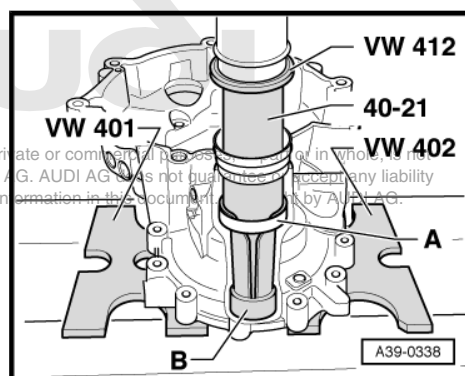
- Support opposite side of inner race using -VW 455- .



Pressing tapered roller bearing outer race -A- out of clutch housing

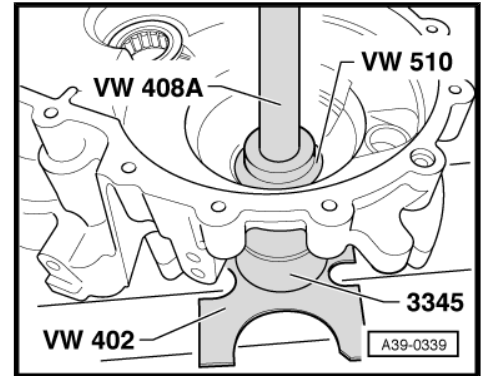
B - Internal puller 46 ... 58 mm , e.g. -Kukko 21/7-

Protected by copyright. Copying for private or commercial purposes without the written permission of Audi AG is not permitted unless authorised by Audi AG. Audi AG does not guarantee or accept any liability with respect to the correctness of information in this document.



Pressing tapered roller bearing outer race into clutch housing

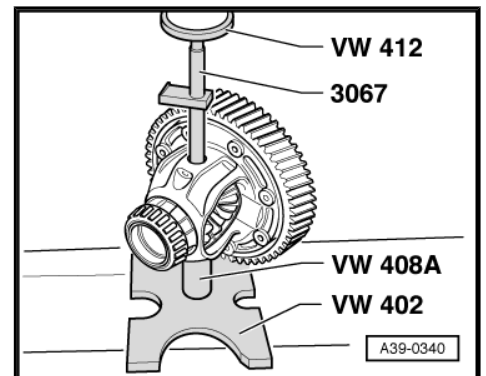
- Support clutch housing with tube for wheel bearing -3345- directly below bearing mounting.



Pressing out differential pinion pin

The spring pin is sheared off when pressing out.

- Drive the remaining part of the spring pin out of the differential cage.

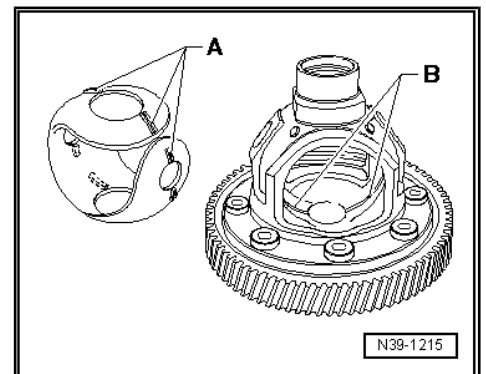


Modification of one-piece thrust washer and differential cage

On some gearboxes, the one-piece thrust washer has a projection next to the holes -A-.

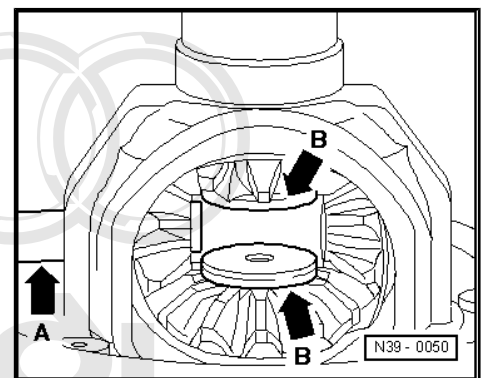
In this case the differential cage has a corresponding circular slot -B-.

- Lubricate one-piece thrust washer with gear oil and install.
- Position one-piece thrust washer so that it engages in the slot -B- in the differential cage.



Installing differential bevel gears

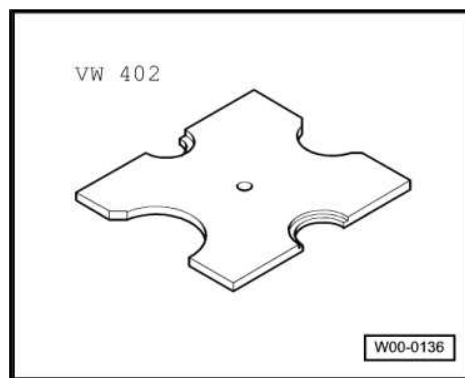
- Lubricate one-piece thrust washer with gear oil and install.
- Install both sun wheels and secure (e.g. with flange shaft).
- Insert planet pinions (180° apart) and pivot into position.
- Push differential pinion pin -arrow A- in as far as first planet pinion.
- Fit threaded pieces -arrows B- in sun wheels. Installation position: Stepped shoulder towards sun wheel
- Drive differential pinion pin into final position and secure with spring pin.



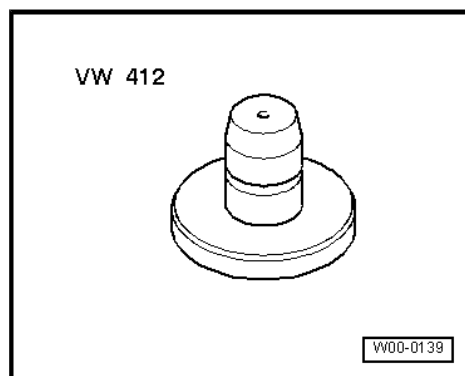
2.1 Modified gearbox housing and tapered roller bearings for differential from gearbox build date 10 06 2 onwards

Special tools and workshop equipment required

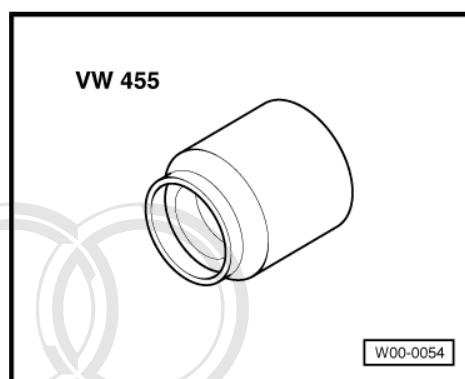
◆ Thrust plate -VW 402-



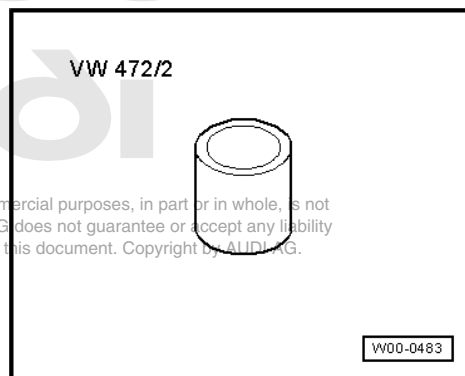
◆ Press tool -VW 412-



◆ Installing sleeve -VW 455-

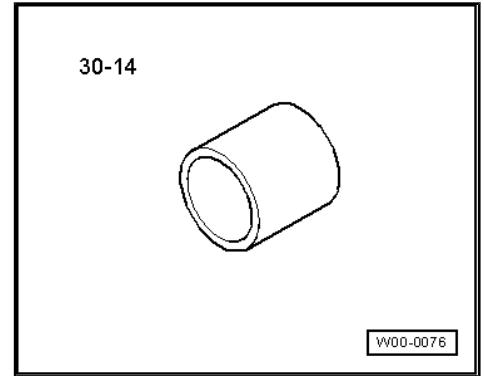


◆ Spacer sleeve -VW 472/2-

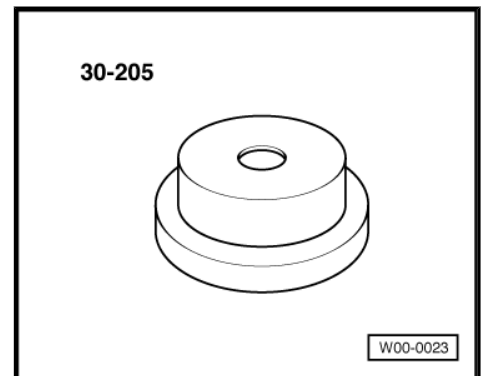


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

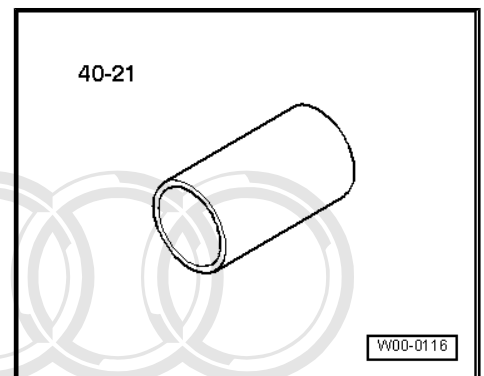
◆ Tube -30-14-



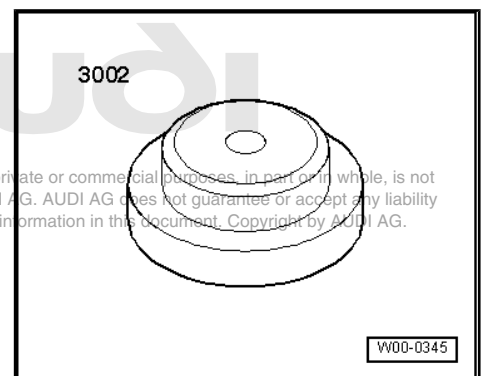
◆ Thrust plate -30-205-



◆ Press tool -40-21-

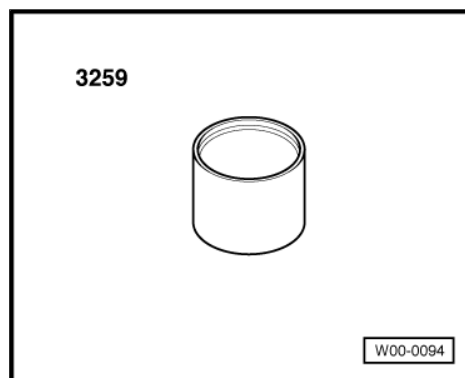


◆ Thrust piece -3002-

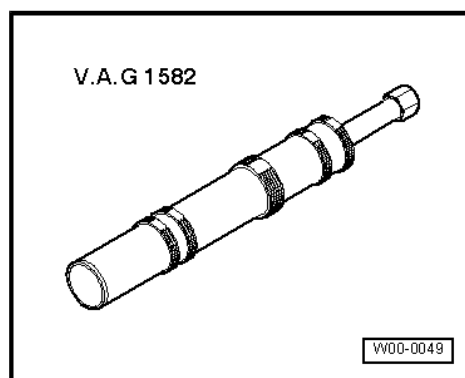


Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

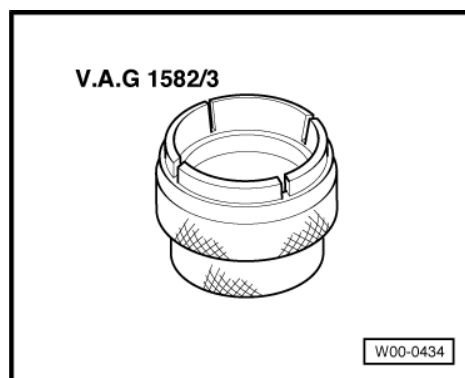
◆ Tube -3259-



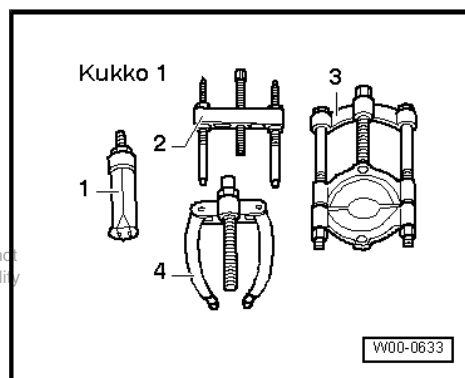
◆ Puller -V.A.G 1582-



◆ Adapter -V.A.G 1582/3-



◆ -1- Internal puller 46...58 mm , e.g. -Kukko 21/7-



◆ -4- Counter support , e.g. -Kukko 22/2-

Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

From gearbox build date 10 06 2 onwards, tapered roller bearing on gearbox housing side is enlarged.

The following components were modified:

- ◆ -A- Tapered roller bearing inner race

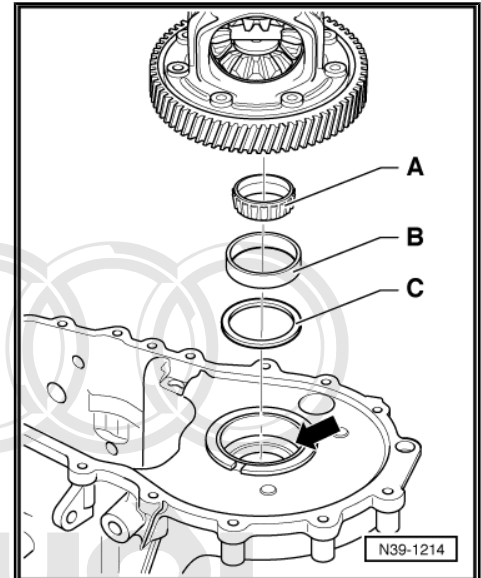
Removing ⇒ [page 119](#)

Installing ⇒ [page 119](#)

- ◆ -B- Tapered roller bearing outer race

Removing ⇒ [page 120](#)

Installing ⇒ [page 120](#)



- ◆ -C- Shim "S₁"

- ◆ Bearing seat for tapered roller bearing outer race - arrow - in gearbox housing.

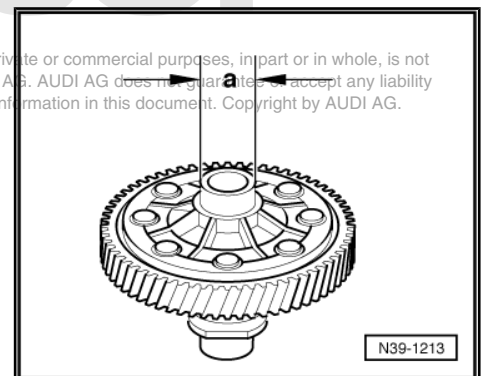
- ◆ Bearing seat for tapered roller bearing on differential has also been enlarged.

- ◆ Distance -a-

- ◆ New: 41 mm

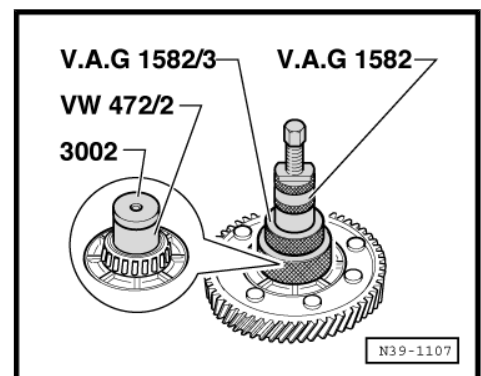
- ◆ Previous: 38 mm

- ◆ Select correct components from ⇒ Electronic parts catalogue .



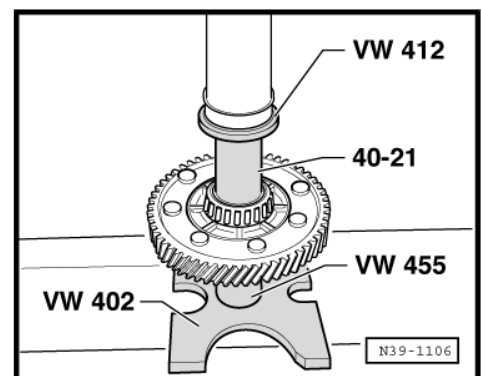
Pulling off tapered roller bearing inner race

- Before fitting puller, position spacer sleeve -VW 472/2- and thrust piece -3002- on differential cage.



Pressing on tapered roller bearing inner race

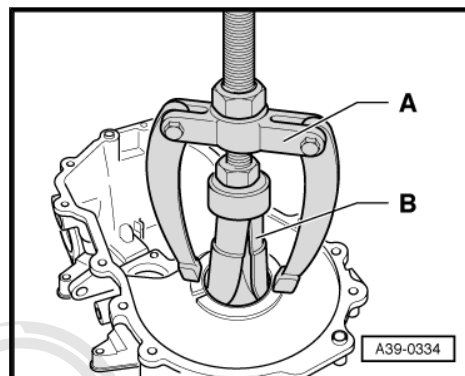
- Use press tool -40-21- to press on tapered roller bearing inner race as far as stop.
- Support opposite side of inner race using installing sleeve -VW 455- .



Pulling outer race for tapered roller bearing out of gearbox housing

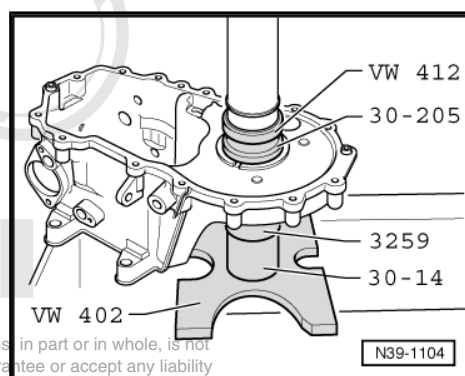
A - Counter-support , e.g. -Kukko 22/2-

B - Internal puller 46 ... 58 mm , e.g. -Kukko 21/7-



Pressing outer race for tapered roller bearing into gearbox housing

- Fit shim S₁, always 1 mm thick, under outer race.
- Press in tapered roller bearing outer race as far as stop using thrust plate -30-205- .
- Support gearbox housing with tube -3259- and tube -30-14- directly below bearing mounting.

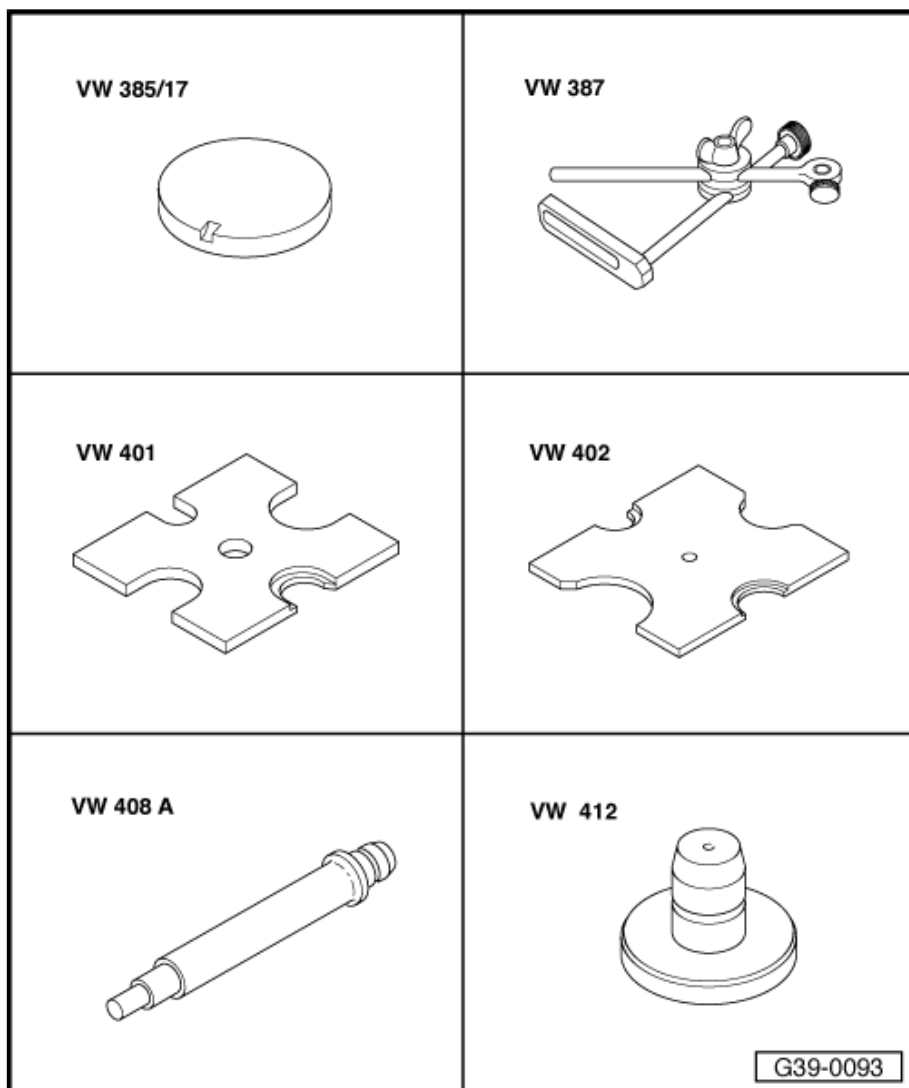


Protected by copyright. Copying for private or commercial purposes in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

3 Adjusting differential

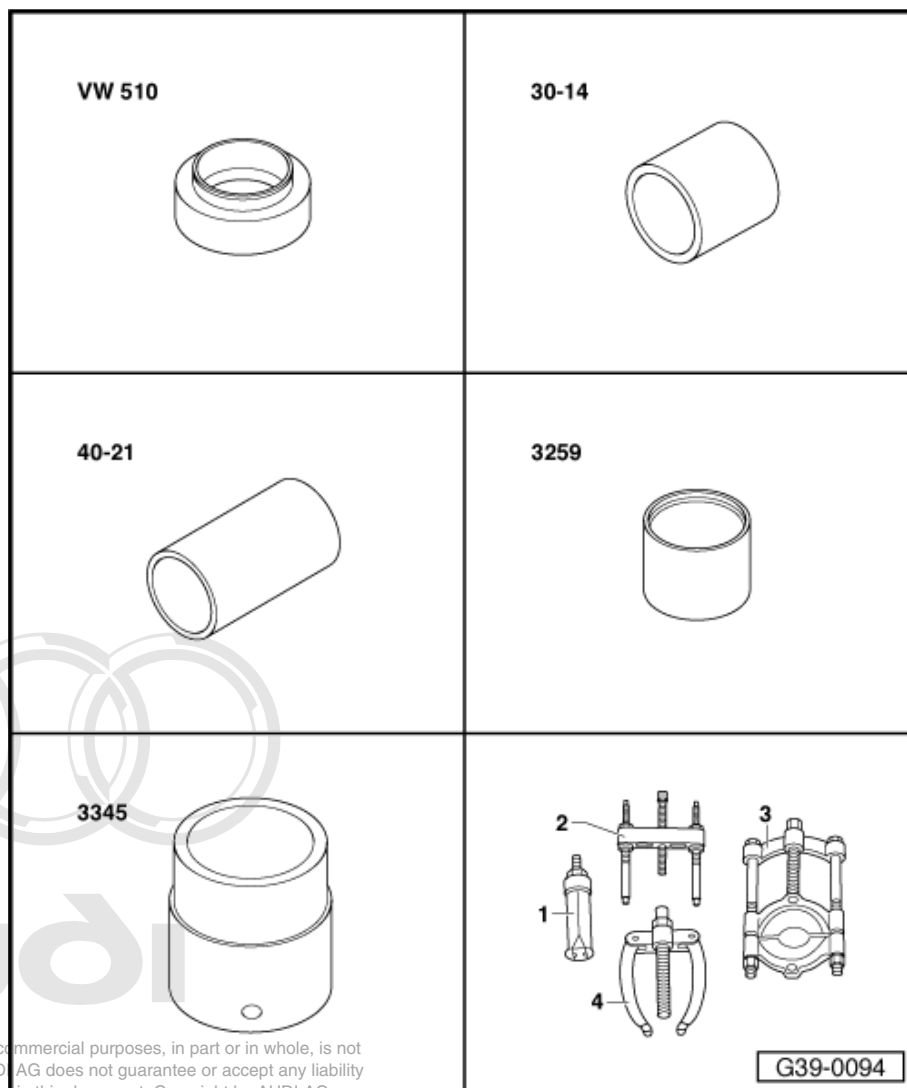
Special tools and workshop equipment required

- ◆ End measuring plate - VW 385/17-
- ◆ Universal dial gauge bracket -VW 387-
- ◆ Thrust plate -VW 401-
- ◆ Thrust plate -VW 402-
- ◆ Press tool -VW 408 A-
- ◆ Press tool -VW 412-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

- ◆ Thrust pad -VW 510-
- ◆ Tube -30 - 14-
- ◆ Press tool -40 - 21-
- ◆ Tube -3259-
- ◆ Wheel bearing tube -3345-
- ◆ -1- Internal puller 46...58 mm , e.g. -Kukko 21/7-



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.

It is necessary to readjust the differential when the following components have been renewed:

- ◆ Gearbox housing
 - ◆ Clutch housing
 - ◆ Differential cage
- or the
- ◆ Differential tapered roller bearings

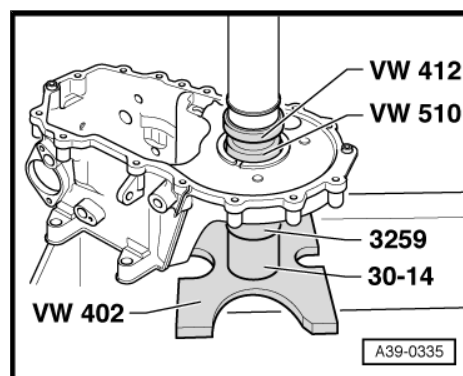
To gearbox build date 05 05 2

- Press tapered roller bearing outer race (gear wheel side) with shim S₁ (always 1 mm thick) into gearbox housing.



Note

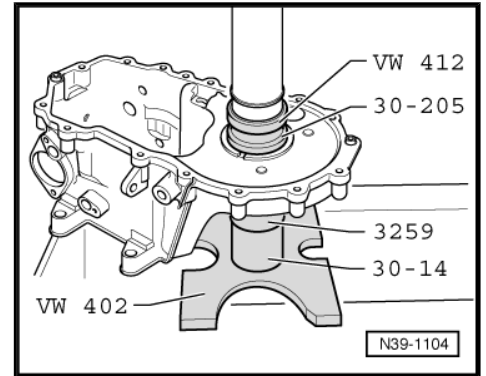
The tapered roller bearing inner and outer races are paired. Do not interchange.



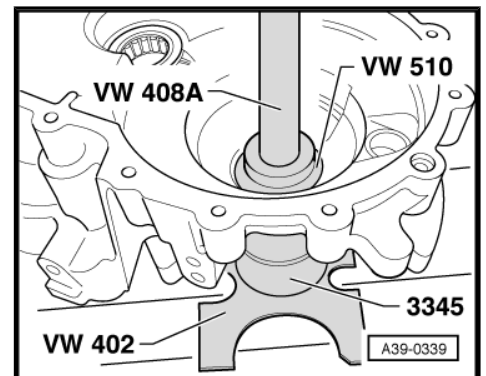
From gearbox build date 06 05 2 onwards

- Press tapered roller bearing outer race (gear wheel side) with shim S₁ (always 1 mm thick) into gearbox housing.

Continued for all gearboxes



- Press tapered roller bearing outer race (opposite gear wheel side) without shim into clutch housing.
- Install differential in gearbox housing.
- Fit clutch housing in place and tighten 5 bolts to torque [⇒ Item 3 \(page 61\)](#).



- Set up measuring tool and dial gauge (3 mm measuring range, dial gauge extension -A- approx. 30 mm).
- Preload dial gauge to 1 mm and set to "0".
- Move differential up and down and read off and note play indicated on dial gauge. (1.50 mm in this example.)

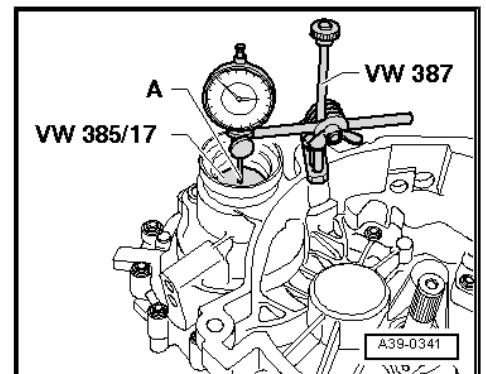
Protected by copyright. Copying, distributing, reproducing, or otherwise using this document, in whole or in part, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability for errors or omissions in this document. Copyright by AUDI AG.

Determining thickness of shim S₂

The specified bearing preload is achieved by adding a constant value (0.25 mm) to the measured value to obtain the required thickness for S₂.

Example:

Measured value	1.50 mm
+ Preload (constant value)	0.25 mm
Thickness of shim S ₂ =	1.75 mm



- Remove clutch housing and press out tapered roller bearing outer race -A-.

B - Internal puller 46 ... 58 mm , e.g. -Kukko 21/7-

- Fit shim S₂ of required thickness (in this example 1.75 mm) and press tapered roller bearing outer race back into clutch housing.

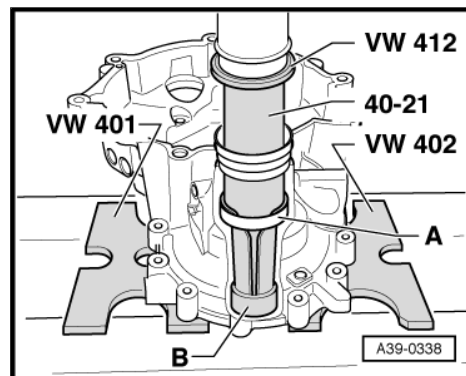
The following shims are available:

Thickness (mm)	Part No.
0.65	02K 409 210
0.70	02K 409 210 A
0.75	02K 409 210 B
0.80	02K 409 210 C
0.85	02K 409 210 D
0.90	02K 409 210 E
0.95	02K 409 210 F
1.00	02K 409 210 G
1.05	02K 409 210 H
1.10	02K 409 210 J
1.15	02K 409 210 K
1.20	02K 409 210 L
1.25	02K 409 210 M

Tolerance variations make it possible to obtain the exact shim thickness required.

If the size of the shim required is larger than those listed in the table, install two shims amounting to the correct value.

- Fit clutch housing in place and tighten bolts to torque
⇒ [Item 3 \(page 61\)](#) .



Protected by copyright. Copying for private or commercial purposes, in part or in whole, is not permitted unless authorised by AUDI AG. AUDI AG does not guarantee or accept any liability with respect to the correctness of information in this document. Copyright by AUDI AG.